

Worse ratios
a possibility
warns Boyson

Dr Boyson: "Some retrenchment necessary."

Any innovation in higher education in the foreseeable future will have to be achieved at the expense of some other provision for which the need is less pressing, Dr Rhodes Boyson, Under-Secretary for Higher Education, said this week.

Dr Boyson, addressing a conference on admission to higher education organized by the National Institute for Careers, Education and Counselling and co-sponsored by the THES, in York, said universities should "re-examine their balance of subjects while colleges and polytechnics concentrated on applied, vocational courses to weather the coming period of level funding successfully."

He cautioned that, since the number of 18-year-olds would increase by about 7 per cent in the next three years, it could be argued that more money should be made available to allow extra students to be recruited. But the declining age participation rate made it unlikely that expanding admissions would be dissipated.

In any case, he said: "Some retrenchment of expenditure is necessary and this may mean that some adjustment of standards, for example in the staff-student ratios, may be unavoidable."

Level funding would mean institutions having to rethink allocation and policy, and perhaps beginning a rationalization of courses within and between institutions, Dr Boyson said. Both the Government and the University Grants Committee would like universities to look critically at the balance between the Sciences, Social Sciences and Arts. He added, and would be holding talks on the subject in due course.

On the public sector, he said: "If young people come to look to the polytechnics and other advanced further education colleges for courses which offer very high prospects of subsequent employment, then institutions will have little need to worry about their numbers. To attract students they should, in my view, further develop their contacts with employers and extend and strengthen the applied nature of their courses."

But Dr Boyson favoured "intelligent" government policy making rather than "unplanned" planning, which had a bad record.

For the present, he said, students should be made more aware of the needs of the economy and taught to develop a more positive attitude to work—something which was not always evident in British graduates.

Likely date for
Clegg's report

The Clegg report on "lecturers' pay comparability" will probably be published on April 24.

Until a firm publication date is known, no plans can be made for a meeting of the Birmingham further education committee. But Mr Peter Dawson, general secretary of the National Association of Teachers in Further and Higher Education, said: "We expect to be negotiating before the end of April."

NELP 62 are first redundancy
victims of spending cuts

by David Jobbins

The first redundancies among polytechnic lecturers as a result of Government-inspired cuts were officially notified this week.

The Department of Employment was due to be informed that up to 62 lecturers at North East London Polytechnic may be declared redundant in the 1981-82 financial year.

The governors and the joint education committee representing NELP's three maintaining boroughs have agreed to stick scrupulously to the terms of the national agreement requiring 12 months' notice of redundancies.

The job losses are part of £1,500,000 cuts planned for the polytechnic on the assumption that it will have to keep its 1981-82 spending within its allocation from the advanced further education pool.

The JEC met last week to approve the 1980-81 estimates which involve a £500,000 cut on top of the £600,000 already planned. To make savings in 1981-82 while simultaneously adhering to the one-year notice agreement, quick decisions had to be made.

Officials met on Monday to decide on the notification procedure.

The problem of who actually employs NELP's lecturers has been cleared up by the establishment of an adapted joint consultative committee to oversee a consultation process with the unions.

On Tuesday the notification letter was awaiting the signature of the secretary to the JEC, Mr A. E. Hartley, before being sent to the Department of Employment. The general secretary of the National Association of Teachers in Further and Higher Education, likely to be the main union affected, was also awaiting notification.

The JEC has told the governors that their plans for the reduced spending limit should include early notification of contingent redundancies and early retirement to the unions.

Enforced job losses are unlikely for non-teaching staff. A no-redundancy "understanding" has been reached with white-collar APT and C staff. Under-Secretary Dr Rhodes Boyson for talks "on higher education generally" last Wednesday afternoon.

taken of the far higher turnover of non-teaching staff, compared with lecturers.

It remains to be seen whether the development spells trouble for the new-found solidarity of the lecturing and support staffs, who are all represented on the polytechnic's joint union liaison committee.

At the moment it is not turning into a union against union fight," he said.

A NATFHE spokesman attacked the JEC for failing to look at the possibilities of avoiding redundancies. "They have not examined in detail the arguments put forward by the joint unions or the academic board working party, which show redundancies are unnecessary."

No timetable has been yet set for consultations between the unions and the governors' working party is seeking to establish a new development base line for the polytechnic.

Polytechnic director Dr George Brossan was expected to meet union representatives on Wednesday. Dr Rhodes Boyson for talks "on higher education generally" last Wednesday afternoon.

DES attacked for policy
on training research

by Patricia Santinelli

strong attack on the Department of Education and Science decision to fund universities rather than public sector institutions to carry out teacher training research was made by Mr Peter Grange, dean of education at West Sussex Institute of Higher Education this week.

Speaking at a conference on the postgraduate certificate of education in the 1980s organized by the education section of the National Association for Teachers in Further and Higher Education Mr Grange said:

"It strikes me as incongruous that the DES has given very substantial funding to the University of Nottingham and more recently to the University of Leicester for a study of PGCE courses in universities while the public sector which has half the students is being catered for by a survey carried out by a small number of overworked 'HALLs'."

He pointed out that one of the major advantages of running postgraduate teacher courses in the public sector is that they have been multifaceted sector as opposed to

university departments of education which in the latter this is a fringe activity, while the former had until quite recently an exclusive responsibility for teacher training.

"I think this difference cannot be minimized because the experience and range of staff in public sector institutions is often much greater than that of those who struggle to hold up their end in departments of education, frequently in comparative isolation," Mr Grange said.

Moreover, as a result of this difference the public sector has attracted students with a much greater motivation to teach than those students who went to universities with the prime motivation of remaining there.

"To some extent this accounts for the different range of subject backgrounds found in the public sector courses, such as psychology, sociology, and engineering. Many of these may well prove good material to solve the problem of shortage subjects, especially those where the background has been scientific," Mr Grange said.

EEC students to escape
full-cost overseas fees

Students from EEC countries will escape the full-cost tuition fees being introduced in September for overseas students. The Government announced this week that they would be charged at the same rate as home students.

The new fees for those from the EEC will be £1,000 for undergraduate and £1,100 for a postgraduate compared with a minimum of £2,000 for arts and social science courses in universities. The announcement will save some students up to £1,000 per year of a medical course.

It will even mean a reduction in fees for those already on courses and paying at the current overseas rate of £940 for undergraduates and £1,250 for postgraduates.

Mr Trevor Storer, president of the National Union of Students, said: "It is marvellous for European students but it is probably the most enormous betrayal of Common wealth countries in history. It seems to us that there are just as good reasons for special treatment for other countries as for the EEC."

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The change of policy was brought forward after the postponement of the Prime Minister's talks on

Biotechnology
'needs
overhaul'

by Peter David

Britain's research structures need to be overhauled if the nation is to exploit the rapidly expanding high technology field of biotechnology, says a report published this week by the Royal Society, the Advisory Board for the Research Councils and the Advisory Council for Applied Research and Development.

Describing biotechnology—the application of biological processes to industry—as an area of "key importance" to the world economy, the report says West Germany, Japan and the United States have been quicker to invest and expand.

Over the next two decades, the report says, biotechnology will affect food and animal feed production, alternative energy resources, pollution control and medical care. It will soon be possible to use biotechnological techniques to make a wide range of organic chemicals which are too expensive to manufacture at present.

But Britain's present structure of research is not well suited to development of the important field, the report maintains. "Biotechnology lacks university centres specifically for it and this results in a shortage of new ideas for industry and of suitably trained manpower."

To remedy this defect, the report calls on the research community to increase their support for biotechnology and cooperate with the Advisory Board for the Research Councils to set up a special joint committee for biotechnology.

The new committee would supervise new projects in the universities and coordinate a coherent programme of research—reaching a minimum of £25m a year—in addition, £2.5m a year should be spent on industrial research and government research establishments involved with biotechnology.

In parallel with these efforts, the University Grants Committee should support the creation of a linked number of centres of excellence in biotechnology from the best existing universities. A minimum of 20 new teaching and research posts should be created over the next five years with a capital investment of around £2m to provide adequate laboratory facilities.

The report calls on the UGC, vice-chancellors and polytechnic directors to involve the DES and the Departments of Employment, in planning for a qualified workforce to match the expected growth of the subject. Young scientists should be made aware of the potential opportunities.

Biotechnology, HMSO 53

UGC fears
pressure for
sale of land

by Ngaio Crequer

The University Grants Committee worried that the Government may in the future put pressure on universities to sell off surplus land or buildings.

In the sixties, when the university system was expanding, land was bought at relatively cheap prices—the expectation that it would be necessary to cater for continuing student demand. But as the system has shifted to contract and financial pressures have been applied, these ready expectations will not be able to be fulfilled.

Mr Jack Walne, of the UGC permanent staff, told a Conference of University Administrators, Reading University last week, the this potential surplus of land is worrying.

"We have not thought seriously about what to do, but if demography is turning against higher education, we are obviously going to have to."

"We have wondered whether it would not be possible to do a deal with the Government, that surplus land were sold it might be possible to keep half of the money, either in the system as a proportionate basis, or as a capital fund, to be used by the officers of the UGC, and a committee policy. But we are not doing anything until we have done a deal on surplus land and buildings, or doing a trade in capital, to think the problem might arise from pressure from Government but no pressure has been applied yet," he said.

The problem is that it has been bought, or buildings are projected with UGC and therefore public money, any proceeds from a sale should return to Treasury coffers.

London University may come against this problem arising from the recommendations of the House of Commons Select Committee on Education. The committee expects a sum amounting to several millions of pounds to be produced through the sale of buildings which may be vacated as a result of the reorganisation of medical schools.

Despite the Treasury rule, London hopes to be able to keep any arising from sale within the university, to be redistributed for medical purposes. The House of Commons Select Committee on Education expects a sum amounting to several millions of pounds to be produced through the sale of buildings which may be vacated as a result of the reorganisation of medical schools.

This flexible approach has been successful before. Chester has been permitted to sell off its own use the proceeds to buy another, if Treasury money has been used in the past. Money collected by private subscription, or donation, for example, is not affected.

The size of the problem is difficult to quantify as there is no survey of surplus land and buildings in universities. Existing plans for future development, even in temporary buildings, are in the process of being reviewed.

Dr Clifford Butler, vice-chancellor of Loughborough University, who has agreed to be its new chairman, said he hoped that the new committee would get into action as quickly as possible.

Original questions for the new committee to consider include the shortage of teachers in specialist subjects, it will also need to look at the Department of Education and Science predictions about teacher supply are really limited.

There is no date yet set for a meeting or any list of its members or terms of reference has been drawn up. When it has met at the Advisory Committee on the Supply and Training of Teachers in 1977, its membership comprised representatives of local authority education, teachers and lecturers, university bodies, and DES officials.

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SSRC names the fortunate five

by Charlotte Barry

Five research units are to be designated as centres of excellence by the Social Science Research Council out of 120 applications for this special privilege.

Each unit will receive between £50,000 and £100,000 a year for a guaranteed eight years. Although final Government approval has not yet been given, the SSRC was announcing the lucky five last week.

The ambitious project represents the long-held ambition of SSRC chairman Mr Michael Posner and his colleagues to create concentrated centres of excellence in existing areas of social science research.

The five chosen centres cover a wide range of research interests. They include the existing Thomas Coram research unit within London University's Institute of Education, the Centre for Urban and Regional Development Studies at Newcastle University and the independently-run National Institute of Economic and Social Research in London.

Also designated are two new centres which will increase the size of existing research programmes and place them on a more formal footing. They will be a Centre for Labour Economics at the London School of Economics and a Centre for Survey Methods which will be administered jointly by the City University and another private unit, Social and Community Planning Research.

The SSRC is also considering the possibility of establishing a sixth designated centre and it meets today to make a final decision. One of the four contenders on the reserve list is Glasgow University's department of town and regional planning which has submitted an application to set up a Housing Research Centre under its new head Professor David Donnison, who is presently chairman of the Supplementary Benefits Commission.



Out of a total of 120 applications from university departments and units and independent research institutions all over the country, 27 were shortlisted. Although the final list was sent to the Department of Education and Science several weeks ago, final approval is still awaited from the Treasury.

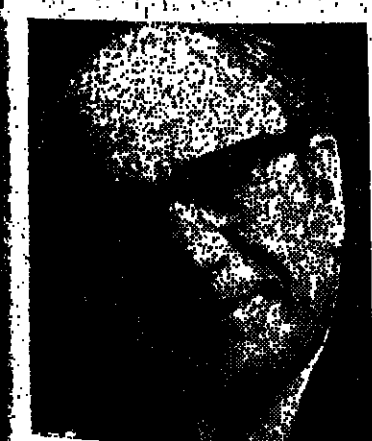
The delay has been caused by the Government's apparent reluctance to be asked in effect to guarantee a substantial slice of the SSRC's budget for an exceptionally long period. Although the SSRC already provides core funding for four major research units, it has now decided to concentrate more on supporting designated research centres. This is because they will be set up on a less permanent basis than the units and will be staffed entirely by employees of the institution in which they will be placed. The centres will also be expected to attract supplementary financial support in the form of research grants from other outside bodies.

The National Institute of Economic and Social Research, which recently had its annual grant from the Treasury halved to £100,000, already receives £200,000 a year from the SSRC. As a designated centre it will be expected to concentrate on research into productivity.

The other four centres represent smaller units with limited financial support which are growing in prominence.

For the past four years Newcastle's Centre for Urban and Regional Development Studies has been concentrating on the study of technical change and regional development, and problems in the local labour market. The Thomas Coram research unit specialises in research on the pre-school child.

The proposed Centre for Survey Methods will expand on work already being carried out at Social and Community Planning Research and the Centre for Labour Economics will extend research already being undertaken at the LSE.

Group gets new
lease of life

Dr Butler: named as chairman

The long-awaited reconstitution of the Advisory Committee on the Supply and Training of Teachers was announced by Mr Mark Carlisle, Secretary of State for Education this week.

He told the National Union of Teachers conference in Blackpool that Dr Clifford Butler, vice-chancellor of Loughborough University, who has agreed to be its new chairman, should see if Department of Education and Science predictions about teacher supply are really limited.

There is no date yet set for a meeting or any list of its members or terms of reference has been drawn up. When it has met at the Advisory Committee on the Supply and Training of Teachers in 1977, its membership comprised representatives of local authority education, teachers and lecturers, university bodies, and DES officials.

Reduced intakes put small
Scots colleges in dangerby Olga Wojtas
Scottish Correspondent

The closure of some of Scotland's 10 colleges of education now seems inevitable following Scottish Secretary Mr George Younger's announcement of reduced intakes for next year.

The proposed intakes for 1980-81 are as follows: this year's intake in Aberystwyth 270 (370), Glasgow 270 (370), Dundee 165 (225), Dumfries 80 (110), Hamilton 95 (125), Jordanhill 745 (815), Moray House 415 (570), Notre Dame 300 (340).

The total teacher training quotas for next year will be 2,250, compared with this year's total of 2,860, a result, says Mr Younger, of the continuing fall in pupil rolls.

Mr Younger added that he is reviewing the colleges' future, and although he does not envisage any changes in the 1980-81 session, the General Teaching Council for Scotland, which represents the Scottish teaching profession and advises the Scottish Secretary on supply, has recommended the closure of the smaller colleges.

This recommendation, which has met with angry opposition from teachers, lecturers and students, is this week challenged by the board of governors and board of studies of Hamilton College in a submission to Mr Younger.

The GTC made an emotive case for preserving larger institutions, says the college.

It points out that the Sneddon report (the Scottish equivalent of the James report, dealing with in-service and pre-service training), sponsored by the GTC, stressed that appropriate in-service training must be made throughout a teacher's career.

The survey covered 345 students from the full range of disciplines at a London polytechnic. There was general agreement across the disciplines, with attainment of a world of beauty, social recognition, national security and salvation being ranked uniformly low.

MPs prepare
fees fightback

The slashing touches will be put to two select committee reports on overseas students next week with the hope of influencing Government policy through a joint initiative.

Despite the presence of a majority of Conservative MPs on both committees, the reports are certain to be critical of the way the Government took its decision to introduce full cost fees and pessimistic about its effects.

The overseas development sub-committee has already completed its report and will submit it to the Select Committee on Foreign Affairs on Wednesday. Although the two main parties were evenly balanced on the sub-committee, the general attendance pattern of Labour MPs ahead of a majority, which will be reversed at the full committee.

Both reports will dwell on the way in which the decision to raise fees was reached, MPs of both sides having been struck by the lack of consultation involved. The sub-committee will deal mainly with the implications of the policy for Britain's relations with other countries and for development in the Third World.

The Select Committee on Education has still to agree the final draft of its interim report on overseas students, having settled the outline of its findings last week.

Subject to the agreement of the Foreign Affairs Committee, the two reports will be published simultaneously in the last week of April or the first in May.

Honesty is the best policy for poly students

Polytechnic students value happiness, freedom and honesty above everything else.

But they have a low opinion of the importance of being polite, clean and obedient, according to a survey published in today's Educational Research, the journal of the National Foundation for Educational Research.

The survey covered 345 students from the full range of disciplines at a London polytechnic. There was general agreement across the disciplines, with attainment of a world of beauty, social recognition, national security and salvation being ranked uniformly low.

Business studies students deviated most from the pattern. In common with similar research carried out in Australia, they emerged as the least helpful, highly ambitious group.

After happiness, the business studies students regarded a comfortable life most highly, in contrast to all the others, who conformed to the bottom half of their preferences.

The sociologists shared equally characteristic opinions, rating world peace and equality highest. Engineering students belied ambition was the most important personal characteristic.

Alexander Luria



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Hope of recognition fades for APT

by David Jobbins

The two local authority employers' associations have now decided against recommending recognition for the Association of Polytechnic Teachers.

The latest setback for APT's campaign for a seat on the Burnham further education committee came with the Association of County Councils' decision to stick to its policy of not recommending recognition either at local or at national level.

But APT leaders are still hopeful that Mr Mark Carlisle, the Secretary of State for Education, will agree to include the 3,000-strong union on the present round of consultations.

The committee last week Mr Carlisle said the review was being undertaken with the aim of making "any necessary changes" for the start of the next school year. He disclosed that part of the review entails an attempt to get a correct count of the membership of the various teaching unions.

He promised to consider a suggestion from Mr Peter Bottomley,

(C. Greenwich, Woolwich W) to set a percentage of membership which a union would need to meet to get representation.

In February the Association of Metropolitan Authorities, the other employers' group, also decided against recommending recognition of APT.

ACC's grounds for not backing APT include opposition to any proliferation of unions with which they have to meet in the collective bargaining process. There is also a substantial policy clash because of APT's desire to see the local authority role in running polytechnics diminished.

"Naturally we are disappointed", APT chairman Mr Ray Powell said. "But we are not despondent. We think the case we have put to Mr Carlisle is a sound one. We are sure that when he studies it he will see it has a lot going for it and we hope he will give us a favourable reply."

Thames Polytechnic has made clear that the decision will not affect its plans (TIMES, March 28) to admit APT to consultations does not constitute recognition for collective bargaining purposes.

College heads advocate work experience

by Patricia Santinelli

Work experience provision for all young people in full-time education should be the subject of a major Government inquiry, the Association of College Principals advocated this week.

The association was replying to three consultative documents issued by the Labour government and now being examined by the committee on the education and training of 16 to 19-year-olds, chaired by Mr Neil Maclean, Under Secretary at the Department of Education and Science.

The DES and the Departments of Employment and Trade and Industry should examine ways in which practical experience can become part of the curriculum, says the association's document.

It advocates a break after school and recommends the creation of a tertiary system. Sixth form colleges linked to further education colleges are only a partial device, it says.

The association wants the Government to set up a modified Department of Education and Training to oversee the education, training and work preparation of 16 to 18-year-olds. Local authorities should be encouraged to recruit their further education authorities to be responsible for the coordination of all post-16 education.

Joint funding of education and training programmes is recommended by the association. This would maximize the provision of education, training and work preparation in institutions providing educational training courses from the annual battle over revenue, and ensure that the Government's educational aims were achieved at local level.

Stirling offers film degree

Beginning next term, Stirling University will offer a degree course in film and television studies.

The courses' general aim is to develop in students an informed and critical awareness of the mass media, as major forces in contemporary society.

Topics include an examination of the work of Welles and Truffaut and the study of the Hollywood western and thriller in their industrial and social context.

Council reports on exam reform

A major impediment to overall reform of sixth-form education is the widely held belief that standards are falling, a report released by the Schools Council yesterday reveals.

The report, *Examinations at 16 plus: A report of the N and F debate*, is based on over 600 replies to a questionnaire sent to the Schools Council in 1978. This suggests replacing A-level with a two-tier, five-subject system of examining called N (Normal) and F (Further), which aimed at broadening the curriculum and examinations in the sixth form.

The replies, which represented the views of many thousands of teachers as well as bodies such as the Standing Conference on University Education, were to form the basis of recommendations to the Secretary of State for Education on the future of examinations at 16 plus.



Tony Wickert, senior video lecturer at North East London Polytechnic's art and design faculty, demonstrates post production techniques in one of the recently installed video tape rooms at the polytechnic. The equipment is the latest stage of development in a new degree course in techniques of communication and is capable of colour television reproduction. The course is intended to teach all aspects of communication through the use of audio, television and film, photograph, graphic and print techniques and although not aimed at training technicians, is intended to give students the opportunity to use professional equipment.

Pool foots bill for Vyas case

The £35,000 legal bill for a court battle over a social work student who was refused admission to a course at North East London Polytechnic is to be borne nationally.

The pooling committee, which administers the advanced further education pool, made its decision to meet the legal costs against advice from the Department of Education.

The dispute began when NLEP turned down a Newham borough council employee, Mr Surash Vyas, who applied for a place on its Certificate of Qualification in Social Work course. The borough, one of three which maintain NLEP, threatened to close the course unless Mr Vyas was enrolled and the polytechnic administration admitted him to the course against the wishes of course tutors.

The Central Council for Education and Training in Social Work then took the polytechnic and the local authority to the High Court.

The pooling committee has accepted the case made out by the main, training authorities that the costs should be met through the nationally financed further education pool. It argued the case was of national interest and helped clarify points of law which could be of help to other institutions.

The DES believed that the costs could not be regarded as "reasonably incidental" to the normal provision of higher education, and therefore could not be nationally borne.

Carlisle urged to think again on adult cuts

by Charlotte Barry

A demand that the Government reconsider its plans to cut adult education spending by a third over the next year was made by the Universities Council for Adult Education at their annual conference in Edinburgh last week.

After a lengthy debate, conference members representing university adult education and extra-mural departments from all over Britain unanimously passed a resolution condemning this latest cut which will amount to about £15m. A copy of the resolution, in which the UCAE voices its concern about the urgent need for greater provision for adult education in a period of rapid industrial and social change, has been sent to the Secretary of State for Education, Mr Mark Carlisle.

The passing of the resolution represents a major shift in emphasis for the conference which is not traditionally a policy-making body but a forum for discussion about developments in university-based adult education.

It was criticized for taking a back seat by a number of this year's members led by Dr Teddy Thomas of Nottingham University who pointed out the interdependence of university, extra-mural departments which are not directly affected by cuts in spending on adult education.

"The universities ought to stand out at the front because they can afford to do so," he told the conference. "Things are going to get a good deal worse and as a public body it's about time we demonstrated our concern."

The relatively stable position of university adult education compared to the local education authority service is also emphasized in the UCAE annual report. "It is a great pleasure to assert that by late 1978 university adult education, though often increasingly harassed by dwindling resources, including finances, staffing and accommodation, was the only agency with its course programme and services still almost intact," it states. "If now the university adult education network of communications and local networks of communications university adult education has so painstakingly constructed within the pooling of the pool and introduction of the Royal Assent Act."

The Education Act received the Royal Assent last week despite Labour protests that insufficient time had been allocated for debate. The measure will give the Government the advanced further education pool.

Chemists 'need better formula'

by Robin McKie

There is a critical need to develop coordination between employers, education, Government and training agencies in the deployment of scientists in the chemical industry, the Annual Chemical Congress was warned yesterday.

There are more than 40 different types of chemists among those 30,000 at present working in industry, Dr E. C. Willing and Mr W. J. Marmion of the Chemical and Allied Products Industry Training Board, told delegates. In the next years this number will have to rise by a further 2,000 to meet the increased needs of various companies.

However, this is being jeopardized by reduced financial support for education and by a poor image of industry," Dr Willing and Mr Marmion added. In particular problems of recruitment were being

caused by a growing shortage of science teachers, poor teacher-pupil ratios and Government cutbacks in higher education.

"Cuts in a number of specialist fields and the reduction in grants to overseas students, could well mean that many of the postgraduate course that rely heavily on overseas people will no longer be viable."

However, the real problem is not supplying general numbers, but in satisfying the need for more specialists and better quality scientists.

Working class children lose out on funding

by Sandra Hempel

The big drop out of the British education system came not at 18 but at 16, Mr Gerald Fowler, deputy director of Preston Polytechnic, told a conference on admissions to higher education at York last week organized by the Careers Research and Advisory Centre in conjunction with the National Institute for Careers Education and Counselling and co-sponsored by the TUC.

It was mainly working class children who did not go on to higher or further education and one reason was there was not just no financial incentive but a positive disincentive to it.

This was why an educational maintenance allowance scheme had been proposed a few years ago.

A major factor for the young in deciding on higher education was the likely remuneration. "As they see it they will not get much money for three years and then will not recoup that loss for several years to come," he said.

The much publicized "hump" of 18-year-olds, which had prompted schemes such as "rattling through the hump" to get on for money through the system," he said.

There was "some muttering," Mr Fowler said, that the university Grants Committee might provide finance for part-time university courses. This was because universities would be wondering how to fill their degree places with full-time students.

"It is rather sad that when people suggested some time ago that the universities might do more to help the local community with things like part-time courses there was no response. I am glad they are considering it now but it is a pity they are not doing it for more honourable reasons," he said.

The government's present attitude was just a stepping stone to a new way of financing higher education, Mr Fowler believed. The average unit cost in the public sector which would apply rigorously to institutions did not mean that those operating below average would get more. It meant that those operating above, often for perfectly good reasons, would get less.

"One ray of hope is that the CNA is leaning towards a system of approval course by course," he said.

Mr Fowler suggested. He proposed a combined loan and grant system in which the grant element increased and the loan decreased with the senior age of the student. "This would mean people deferring HE and when they did come they would have greater experience of life and of work. They would know what they wanted to do and why," he said.

Another possibility, said Mr Fowler, would be to encourage more part-time or "mixed term" study, where students worked their way through colleges as they did in the United States. He suggested a five-year degree with stopping off points.

"The student could choose from a wider range of specializations and we could put work experience into it as an integral part. This would push the wastage rate up but we should not be going for money going through the system," he said.

There was "some muttering," Mr Fowler said, that the university Grants Committee might provide finance for part-time university courses. This was because universities would be wondering how to fill their degree places with full-time students.

"It is rather sad that when people suggested some time ago that the universities might do more to help the local community with things like part-time courses there was no response. I am glad they are considering it now but it is a pity they are not doing it for more honourable reasons," he said.

The government's present attitude was just a stepping stone to a new way of financing higher education, Mr Fowler believed. The average unit cost in the public sector which would apply rigorously to institutions did not mean that those operating below average would get more. It meant that those operating above, often for perfectly good reasons, would get less.

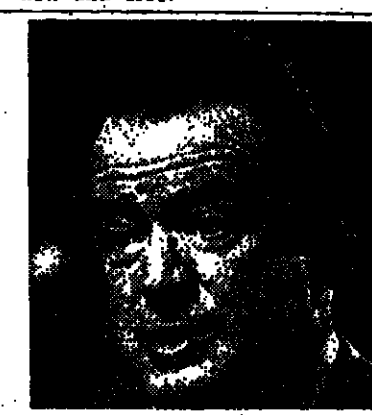
"One ray of hope is that the CNA is leaning towards a system of approval course by course," he said.

The statistics for specific departments and courses were "little better. According to a study of 1967-68 and 1968-69 intakes at Birmingham, the coefficients of correlation between A-level grades and degree in 25 areas of study varied from 0.7 for men in virology and bacteriology to 0.05 for women in combined subjects."

Dr Wankowski's own study suggested that access at university was associated with personal confidence, hopeful but realistic projection into future occupational and social roles, notational stability, temperamental tendency towards introversion, relative independence from teachers, a tacit acceptance of the curriculum and work demands acting within the structure of the subject.

The search for a successful student was added. "Personally I would admit to higher education as many as is possible and encourage all to study. A mixture of people's idiosyncrasies are necessary to achieve higher education," he concluded.

Interests and other activities.



Mr Gerry Fowler, a former Labour education minister, appealed for more maintenance allowances for the over-16s at the conference in addition to higher education at York.

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Teacher shortage campaign attracts hopeful candidates

A new move in the Department of Education and Science's campaign to recruit teachers in shortage subjects has come this week in the form of a booklet advising prospective teachers not to be put off by reports of teacher unemployment.

"Although there is a general surplus of teachers, there is a severe shortage of teachers in physical sciences and mathematics at both primary and secondary level," the booklet *Teaching Physical Sciences and Mathematics* points out.

So far the campaign has attracted some 6,500 replies and these are still rising. As yet there is no data on how many of these will be accepted.

Last week an HMI report giving supplementary information on mathematics as part of the second survey revealed that up to 4,000 teachers with better qualifications in mathematics were needed to teach the subject in England.

It implied that although this need would have to be met by training new teachers and giving more in-service training, the real solution lay in making better use of resources.

Latest figures from the Central Register for BEd degree and Post-

graduate Certificate of Education show that applications to science subjects have risen marginally in comparison to last year but there were still only 295 applicants for mathematics and 22 for physics as first choice.

One direct solution to the shortage was proposed by Mr Brian Kay, chief HMI for teacher training when speaking at a conference on the PGCE last week.

"It cannot be coincidental that only 12 per cent of the intake to PGCE comes from science-based areas. One solution is to offer bursaries to a limited number of students in shortage subjects who are qualified at degree level to train as teachers or at sixth form level to take a BEd course," he said.

If this were supported by an arrangement whereby these people were guaranteed posts, then a useful formula would have been devised, he added.

However, it is unlikely that this proposal could ever become acceptable to the teaching unions. The National Union of Teachers reiterated its position last week that all teachers should be paid a reasonable salary to encourage able people into the profession.

DES researcher calls for credit transfer data service

A national information service on credit transfer would go part of the way towards breaking down international barriers in higher education, the research fellow of a Department of Education and Science study group said last week.

Mr John Clapham, who serviced the DES group on credit transfer, told the International Higher Education Conference at Hull that only when financial problems had been overcome could the value of international student mobility be assessed. The question remained, he said, whether change could be initiated by individual institutions or only by Government.

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"The proposals from that study for the establishment of a national information service would, if implemented, have a significantly beneficial effect in this area."

Later in the week at the NICEC/THES conference, Mr Clapham said the information service would need to be able to deal with not less than 18,000 inquiries per year, from an estimated 600 institutions. He envisaged an initial period of two years for developing a pilot scheme involving the preparation of basic information and the detailing of the service's day-to-day operations and organization.

"The service might be self-financing in time," he said, but would require a central body for the first three years. This would include a sum of £190,000 to set up the unit and £220,000 per annum if it started out as a service for institutional users only, rising to £260,000 to include student users.

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North American News

Space shuttle programme escapes cash withdrawal

from Robin McKie
Science Correspondent

HOUSTON Space science programmes are to be the major victims of President Carter's recently announced cutbacks in the 1981 budget of the national aeronautics and space administration, part of his overall federal spending reductions.

However, earlier fears of NASA officials at the Houston Space Centre, Texas, who believed that up to \$760m would be cut from their \$5.4b budget, have not been realised and only \$224m is now to be cut, with the agency's current major project, the reusable space shuttle, being spared any reduction in funding.

Indeed, White House officials are now confident that Congress will ultimately approve President Carter's recent request for a further \$300m supplemental budget in 1980 to ease the pressing problems of the shuttle programme, despite a recent Senate budget committee decision to block the move.

Originally scheduled for launch last year, the shuttle is now targeted for its first orbital test flight on November 30 this year, although Houston officials believe this will be further delayed to February 1981 because of problems in developing

the spaceship's vital heat insulation system.

European scientists can be expected to receive the NASA budget cutback news with mixed emotions. Had there been greater reductions, then development of the second and third shuttle spacecraft would have been halted or seriously delayed and many European projects, including the space telescope, a joint mission with the United States, would have been affected.

However, there will be disappointment that the revised space science budget, which is to be cut from \$668 million to \$561 million, will cause a two-year delay, to 1985, in the launch of a joint European/American two-spacecraft mission to study the sun from its polar regions, and it is also expected that there will be a delay in some space lab missions.

In making space science missions bear the brunt of his budget balancing cuts, and in according high priority to the space shuttle, President Carter is acknowledging that the reusable spaceship is to form the cornerstone of America's future space programmes and will have critical importance in launching defence-related spacecraft as well as civilian projects.

Carter's revised 1981 budget means cuts in student aid

from Clive Cookson

WASHINGTON American colleges and universities are bracing themselves for significant cuts in both the main areas in which the Federal Government channels funds to higher education, research and student financial aid.

President Carter has sent Congress a revised 1981 budget, which contains \$15,000m spending cuts. If adopted by Congress, it would be the United States Government's first balanced budget since the 1960s. At the same time Mr Carter asked Congress to make smaller cuts, totalling \$2,400m in expenditure already approved for the current fiscal year which started in October, 1979.

In both years the proposed cuts would affect almost every major agency, including the new Department of Education and the various agencies supporting academic research. Congress is likely to go along with the basic thrust of the cuts, which are intended to reduce inflation: for the first three months of this year consumer prices have been rising at an annual rate of about 18 per cent. The President's council of economic

advisers continues to predict a return to single digit inflation next year, but this administration's price forecasts have consistently turned out to be too optimistic, and most independent economic forecasters are more gloomy about the prospects for getting inflation under control.

The White House consulted closely with Congressional leaders in drawing up its list of cuts, to make sure they stood a good chance of getting through Congress. The House of Representatives budget committee has already proposed its own balanced budget for 1981, which contains similar reductions in expenditure, though some of the details are different from the President's package.

Mr Carter wants to cut student financial aid by \$1,000m in 1980 and \$1,500m in 1981. The latter would be on top of the \$200m reduction already proposed in the January version of the 1981 budget. The administration says soaring interest rates would otherwise make its subsidised loan programmes \$300m more expensive in 1981 than it estimated in January.

The House budget committee is recommending similar reductions in student grants and loans—\$135m this year and \$200m for 1981. However, the appropriations (budget fixing) process for student financial aid is complicated this year by the fact that Congress is currently re-authorising federal higher education

programmes for the next five years, and it is not yet clear how much they will be changed.

The total effect of the budget revisions on research had not yet been worked out by the White House at the time of writing. But the National Institute of Health, the main supporter of biomedical research, is in line for a \$400m cut in its \$3,600m budget, and the National Science Foundation, which funds general scientific research in universities and also promotes science education, is to lose \$70m of its \$1,150m 1981 budget. The combination of these cuts and the higher than expected rate of inflation will more than eliminate the 3 per cent real growth in basic research that Mr Carter proposed in January.

Another aspect of the President's budget cuts that could hit higher education is the proposal to eliminate \$1,700m of so-called "research sharing" grants to states. These funds are transferred with strings attached and states are free to spend them in any way. The United States Treasury estimates that about half are actually used to support education: some states use the money only for elementary and secondary schools, but some of the funds find their way to colleges and universities. Indeed, Texas allocates all its revenue-sharing grant to finance higher education. The overall effect of the elimination of federal revenue sharing with the states is still very uncertain.

Supreme Court considers key case of genetic engineering

by our North American editor

The United States Supreme Court has heard arguments in what is expected to be a landmark case whose outcome may have a crucial impact on the commercialization of genetic engineering research. The case is whether new organisms created in a laboratory can be patented.

Back in 1972 the General Electric Company filed a patent application for a new strain of bacteria that one of its researchers, Ananda Chakrabarty, had developed to break down oil spills. It is genetically engineered to digest several different hydrocarbon components of crude oil, unlike natural bacteria, which can cope with at most one compound.

The United States Patent Office refused the application, on the grounds that the American patent laws do not state that living organisms are included. General Electric challenged the rejection in court, arguing that the laws do not specifically exclude living organisms.

Since then the case has followed a tortuous path through the federal legal system, passing through several courts twice. Most recently the court of customs and patent appeals decided that Dr Chakrabarty's bacteria were patentable, ruling that "the fact that microorganisms are alive is a distinction without legal significance. The patent office asked the Supreme Court to reverse the appeals court and the nine justices are expected to give their final ruling on the case before the current law term ends in June.

An increasing number of patent applications for microorganisms created by recombinant DNA—the basic technique of genetic engineering—are piling up, waiting for the Chakrabarty case to be resolved.

Several have been filed by universities, which stand to make a lot of money out of their research. Otherwise, they argued, the tremendous potential of recombinant DNA techniques would not be fully realized, and universities would be deprived of a source of income that would be used to support new research.

As always, the impact of the Supreme Court's decision will depend on how sweeping its scope is. Rulings in what have been built up beforehand as landmark cases often turn out to be anti-climactic because the nine justices have issued opinions that are narrow in scope and confusing.

In this case, the ruling is likely to depend on the view the court takes of the legislative history of the 1930 Patent Act. The patent office argues that Congress passed that act specifically to give patent protection to certain plant varieties because the existing laws were too limited to exclude living things in general. General Electric and its supporters in the academic and business worlds disagree with this interpretation.

Whatever the final outcome, it should only affect the patenting of microorganisms themselves. Even if the Supreme Court upholds the Patent Office's original decision, the techniques of genetic engineering will still be patentable, and patenting new production methods may be considered more important than patenting the actual product.

Fusion study centre to open in Texas

A new Institute for fusion studies is to open at the University of Texas, Austin, in the autumn. The United States Department of Energy announced last week that it would give the state university \$8m over the next five years, with matching funds from the university to set up the institute.

It will concentrate on the theory of nuclear fusion, with its own permanent scientific staff, and will therefore complement the university's fusion research centre, where experimental work is carried out.

Harvard post for British biologist

John Cairns, one of Britain's best known molecular biologists, has accepted a professorship at Harvard University. Since 1973 he has headed the Mill Hill laboratory of the Imperial Cancer Research Fund in London.

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Overseas News

Students protest over entry regulations

by Guy Naveau

French universities have been hit by a new wave of unrest. In Paris, police were called to evict students occupying the Student Welfare Service. At Le Mans, following a series of strikes, sit-ins, and occupations of administrative buildings by students, the university has been closed down on the orders of its president.

Grenoble University has been virtually brought to a halt following protests against the recent decision of the Minister of the Interior, M. Christian Bonnet, to apply the criteria in granting foreign students residence permits. In one demonstration more than 2,000 Grenoble students marched in protest. The Ministry, it is said, will expel any foreign student whose domicile papers are no longer in order.

Sympathy strikes in support of foreign students have spread particularly after the announcement that the Ministry of Higher Education that future admissions procedures

for foreigners would be tightened up. With roughly 5,000 out of a total of 30,000 students from abroad, Grenoble, the second most popular university town for foreigners after Paris, is the epicentre of the present turmoil.

How many students will be affected by the new measures is not known at present. A figure of roughly 15,000 has been mentioned by sources close to the Ministry of Higher Education.

The campaign to tighten up foreign admissions does not involve new legislation, rather the tightening up of existing conditions. Foreigners will have to show an adequate mastery of French and give proof of sufficient funds to last through the academic year. The possibility of part-time work—long a feature of French student life—will no longer be open to them.

It is in this context that the new circular from the ministry will bite. Any attempt by students with permits to work might result in their expulsion.



M. Bonnet: applying stricter criteria

The language test is also looked on as discriminatory. In an attempt to block this, students at Grenoble called upon the university administration to enrol foreign students

wishing to study next year without testing them.

Foreign enrolments are not the only source of trouble. For the past three weeks, students at the faculty of physical education at Nice have been on strike following the cutback by the Ministry of Education on the number of instructor posts in secondary schools.

Now the strike has spread to other university departments, notably Aix-Marseille 2, Grenoble, Caen, Montpellier and Lyons 1. At Nice, perhaps the hardest hit, support from other departments has been overwhelming. Seventy-five per cent of law students voted to back the strike as did 68 per cent of science students.

In an attempt to cool the conflict, the president of Nice University has called upon M. Jean-Pierre Solson, Minister for Youth, Leisure and Sport, to find alternative employment for physical education graduates in the areas of leisure, tourism, and care of the old.

Universities face cash cutbacks

from John Walsh

DUBLIN

The Republic of Ireland's five university colleges face a difficult year as a result of cutbacks on public spending. They have been given instructions not to borrow from the banks and not to expect supplementary aid in the autumn. They have also been urged to give priority in their spending to the social courses that are earmarked to meet skill shortages in industry.

The university colleges which cater for about two thirds of the republic's 35,000 full-time higher education students are increasing their fees by 16 per cent in line with inflation. But the revenue yielded from the increase will be insufficient to make up the shortfall in the state grants which account for roughly 85 per cent of their annual income.

Although the cuts are not as deep as for their British counterparts, Irish university administrators are bracing themselves for a difficult year. More important, they are hoping that the present moves are not hints of worse to come.

The colleges are currently examining their budgets to see where they can effect economies. But, as 80 per cent of their income goes on salaries, there is relatively little room for manoeuvre. To make matters more difficult, equipment and laboratory aids are rising faster than inflation.

"We shall have to examine every staff vacancy as it arises," said Dr Colm O'Boyle, president, University College, Galway. He also mentioned the possibility of saving on heating and lighting. Dr O'Boyle is anxious to ensure that whatever economy measures are taken, university standards or the special manpower programme will not be affected.

He is perhaps more concerned about the rising tide of "university bashing" from government ministers, industrialists and other public opinion and apparently government spending seems to be diverted more and more towards the technological sector of higher education.

The universities have produced and are still producing the bulk of top engineering and science graduates for industry, says Dr O'Boyle, who is also anxious to bury the myth of unemployable graduates. In fact, university colleges, Galway arts graduates did exceptionally well last year—only ten of them were still seeking employment at the beginning of this year. The picture is much the same for the other university colleges.

Report upholds students' complaints

A sub-committee for the senate of Nairobi University, set up to study and recommend on matters arising from disturbances which led to the closure of the university last month, has criticised the catering organisation which was the students' main complaint.

The committee's report says there is evidence of mismanagement and a lack of effective control in the central catering unit which caters for up to 5,000 students. It recommends a long-term measure, a decentralisation of the catering organization with separate kitchens and dining rooms for individual halls of residence.

The centralized catering system has led to wastage of funds, low catering standards, and mounting dissatisfaction among the students, the sub-committee concludes.

The report notes that there have been 23 major disturbances at the university over the past 19 years; several of which have resulted in a closure of the university.

Several more student disturbances have recently taken place in Kenya, resulting in the closure last week of the Kenya Science Teachers' College in Nairobi and several other institutions. A minister has admitted that Kenya is short of 1,500 secondary school teachers.

Vagabonds in search of knowledge

from Uli Schmetzer

ROME

Paolo Furla packed his rucksack this month and moved to Bologna to sit in on a series of lectures entitled: "The Malignant Techniques of Modern Cinema".

It was Paolo's fifth trip as a "lecture bum" a new species of Italian student who chases "in" lectures (passed down on the grapevine) across the country.

At 24, bearded Paolo, a third-year philosophy dropout from Rome University, belongs to a new breed of vagabonds, a breed which revived the medieval student practice of wandering from campus to campus in search of new knowledge and new gurus.

The growing number of vagabonds prompted the education publicist *Alfabeta* to publish early this year a list of lecture topics at universities up and down the peninsula. A few weeks later the popular weekly magazine *L'Espresso* compiled a five-page "guide to campus" for travelling students.

The guide gives vagabonds a variety of lectures from Lessing at Turin to Nietzsche in Trieste, from a Indo-German comparison of state, systems and crisis at Genoa to the failures of contemporary art at Siena campus.

The phenomenon of the wandering students who seek knowledge rather than a profitable Laurea (bachelor degree) follows an outcry that Italy's major universities have become so unwieldy and congested they can no longer adequately educate their students.

Having a week passes without an academic or faculty head denouncing the Laureate to be worthy of the paper it is written on. That is, the Laureate is a political pass given to complacent professors.

Rome architecture dean Bruno Zevi last year resigned saying he preferred a small pension to a big class of donkeys. In this climate of disenchantment the vagabond student is not just a new child, he is a new sense.

"So many of my colleagues lecture topics on which they are of no interest to anyone but themselves," he says. "The very vagabonds prefer to be 'fed up' with lectures by who hold forth on their favourite old arguments without new spice."

"You can pick up the argument of most lectures from books in the library," says Rocco Pirelli, another student with nine campuses to her credit in one year.

Stress and strain of learning by post

from Michael Binyon

MOSCOW

A system that played a crucial role in educating most of the Soviet leaders now in power has been attracting increasing criticism in recent months. Correspondence schools, which still enrol thousands of Russians for part-time study, are said to be beset with difficulties and in need of reform.

A Moscow professor recently pointed out in a letter to the *Literaturnaya Gazeta* that education ministries paid little attention to the specific difficulties of independent study and the strains on correspondence students' lives.

He said many worker-students found they had gaps in their knowledge, either from schoolwork being forgotten, or from interruptions to their study due to work, motherhood, moving to different parts of the country and so on. There was also the additional factor of ordinary human fatigue.

Add to this the pedagogically inferior practice of swapping the students with a week of lectures as soon as they arrive at the base school for their examinations—plus a basket of other problems: the need to lease classroom space and suit to temporary housing for the out-of-town students, the shortage of instructors, laboratory assistants and equipment, and the paradoxes of school vacation schedules.

All these problems were discussed last year at a joint conference of two standing committees of the Supreme Soviet of the Russian Republic, the largest of the 15 Soviet republics.

One topic was who corresponded students actually were. According to an article of the republic's

education law, correspondence and night courses are for people who hold jobs. But in fact an increasing number of students are not employed in factories at all, but are refused admission as full-time students in higher education.

In 1978 these people made up 35 per cent of those enrolled in the night-school divisions of higher education institutions in the Russian republic. They accounted for about 40 per cent of the students at the East European Polytechnical Institute, about 50 per cent of those at Krasnodar Polytechnic and at Saratov University and fully 95 per cent of those at the Voronezh Technological Institute.

Spooked at the conference pointed out that most factories failed to make a special effort to get promising employees into continuing education and provide them with opportunities for study. Only 2 to 2.5 per cent of those enrolled had been sent by their enterprises.

The dropout rate is another concern. In 1978 alone, tens of thousands of correspondence students at schools in the republic dropped out, more than half of them because of failing grades.

Literaturnaya Gazeta said academic failure in these courses was due to a number of reasons. Some of the failing students had no business in higher education. Others needed extra help with their studies.

This was especially true of the large number of correspondence students who are school teachers. Only 40,000 of the 210,000 teachers in the Russian republic's primary schools have higher education—19

per cent of the total. And in some provinces the number is as low as 3 per cent. Even among teachers of the basic academic subjects 11 per cent in the republic lacked a higher degree.

The paper said these teachers who failed while pursuing correspondence courses should be granted extra help. Their interest was guaranteed, and it was certainly the duty pressure they could not cope with.

Another cause for concern is the high number of correspondence school students who repeat courses. Only half those enrolled in the republic finished the programme on time. In some institutions four-fifths of the students repeat courses. Only 22 out of 150 students accepted for the first year's work at Petrozavodsk University in 1972 graduated on schedule. More than a million people who have enrolled in correspondence courses have failed to graduate—something the paper called a vast waste of state money.

Many people have put forward suggestions for improvement. One thing that would make a great difference to women students would be better provision for children, and flexibility to allow mothers with small children to take their exams near home instead of having to travel far out of town. Others suggested people be allowed to take their exams ahead of schedule.

These and other questions are now being studied by the Soviet ministry of higher education. Correspondence courses may play a vital role in the Soviet Union, and there is a general feeling that they could do their job better with more flexibility and a wide-ranging examination of their role.

Bavaria charges tuition fees

Students in Bavaria who spend an excessively long time at university will in future have to pay tuition fees. This is a unique step—tuition at West German universities is free.

But Bavaria would appear to have a fairly strong case for breaking with tradition. Munich University alone there are nearly 1,200 students who have each knocked up a total of 17 semesters. About 1,100 have been studying for between 20 and 25 half-year terms.

The high record is held by an ageing gentleman whose university career extends to 57 terms.

The Christian Social Union, the party which has an absolute majority in the State Parliament, voted to amend the university law to counter such exaggerated delays. Many students, it was said, changed their course at an advanced stage. Others stayed on to study something else after obtaining their degree, even though the new course often bore no relation to theirs. It is expected that offenders will be charged up to DM 500 (£125) for a term's tuition.

Debate on what's in a name

from Sue Masterman

VIENNA

There are a few countries where an academic title weighs heavier than in Austria, where those who complete seven years of university study can claim the title "Dr" and are subsequently addressed as "Herr Doktor" or "Frau Doktor" rather than their proper names. The wife of a male graduate is also addressed as "Frau Doktor", a privilege not extended to the husband of a female graduate.

Foreign graduates in Austria, who are obliged by law to print on their visiting cards or on their compulsory nameplate not only their academic title, but the name of the university where they graduated, tend to be disappointed about the validity and quality of many Austrian academic titles.

The Rectors of Austrian universities are also concerned about the value inherent in the graduate title. The highly controversial discussion on whether university study should be split into two levels similar to the British bachelor and master degrees, is currently lively.

The argument in favour of splitting the levels, whose main proponent is Vienna University's Rector, Professor Komarek, is based on

the fact that the numbers of students in many faculties are rising steadily, and—another hypothesis which has yet to be proven—the quality of students is declining.

The number of students, including those from the developing countries whose study in Austria is free, increases in most faculties by 8 to 10 per cent a year. All Austrians who have passed the school-leaving examination, the Matura have the right to study. In some technical faculties, however, and in particular in mining engineering and associated disciplines, the numbers are falling, mainly because employment prospects within Austria are poor, and the study is tough.

The scientific faculties at Austria's universities are mainly in favour of splitting the university course into two levels, nor do they agree that the quality of their entrants has declined. They do argue that more could be done in the schools to prepare potential students for highly specialized disciplines.

The Austrian socialist government has so far rejected outright any proposal to change the present university structure. They are all against creating yet another level of "elite".

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Patricia Santine

It seems clear from the general dissatisfaction with the sixth form curriculum that in-line demand for change and action will escalate:

Patricia Santine

Patricia Santine

Germany's academic institutions pride themselves on being free of political interference but this is not really so, says Wolfgang J. Mommsen

The history of German academic institutions since the early 19th century is closely connected with the principle of the freedom of research and teaching from direct government interference, even though all German universities have been governmental institutions from the very start, and although the professors have always shared the duties and privileges of civil servants.

Wilhelm von Humboldt, who in 1809 founded the University of Berlin which became a pattern of modern university organization throughout Europe and indeed throughout the world, had argued from the start that "the state must not demand anything from scholarly research which is directly related to its own being. Rather it has to put trust in the principle that the sciences, by pursuing their own ultimate goal with a more elevated point of view, foster its objectives also".

Throughout the 19th and early 20th centuries German scholars were indeed proud of being members of a self-governing academic community which was largely free from all governmental interference in the pursuit of its scholarly activities even though the universities and other academic institutions were all dependent upon the various governments.

By and large this has indeed been the case; undoubtedly the principle of academic freedom has been one of the essential pre-requisites for the rise of German academic scholarship to international acknowledgement during the last nineteenth and twentieth centuries.

However, in practice substantial restrictions on the pursuit of scholarly research and academic teaching have always existed. Up to 1918 Social Democrats were officially prevented from obtaining teaching posts in German universities, and against other groups, not least the Jews, discrimination was also practised, though to a lesser degree. Max Weber summed up this sorry state of affairs in 1908, on the occasion of Robert Michels' not being accepted for habilitation at any German university: "The 'freedom of scholarship' exists in Germany only within the limits of political and ecclesiastical acceptability".

Most people in the Federal Republic would nowadays argue that the days of Wilhelmian Germany are long since gone, and that there are no restrictions on the freedom of academic life in the Federal Republic any more. Indeed, since the devastating experience of National Socialism which tried hard, though with only partial success, to permeate traditional bourgeois scholarship with national socialist propaganda, the principle of academic freedom has been formally written into the constitution and the traditional autonomy of the academic bodies of the various universities restored.

None the less, the question has recently been raised again in various quarters, both inside and outside the Federal Republic, as to whether, in fact, academic freedom has not been put increasingly in jeopardy. Some argue that the universities, which were crippled by the power of the professors, opened the door to all sorts of political pressures, was fundamentally at variance with the principle of academic freedom.

Others complain with some justification that the government authorities have not only in times of increasing tension the organizational structures of academic research and teaching, but more often than that attempt to impose candidates of their own choice upon the universities, mainly for purely political reasons. Only last year such a case happened in Bavaria where the CSU-controlled government appointed a professor of art of rather traditionalist outlook, without regard to the suggestions of the academic community.

Above all, the charge has been made that by the practice which has been labelled rather one-sidedly as *Berufsverbot* and a variety of other more minor legislative measures related to the suppression of immovable academic research has been seriously undermined. "Although most of these changes, put forward from alternative, if not directly conflicting, political camps, would seem to be exaggerated, they ought to be taken seriously, and discussed on their merits. Indeed, since the 1960s the situation at the universities and other



German students protesting on behalf of the underdog

An illusion of freedom

higher educational institutions in the Federal Republic has become less peaceful, and more often than not tense indeed. Two interlocking processes broke up the relative tranquillity which the universities had been enjoying since their restoration after 1945: the student revolution on the one hand and the various university reforms on the other.

The latter did away in many ways with the hegemony which the professors had traditionally enjoyed within the academic bodies, and enforced varying degrees of participation by junior staff, students, and sometimes also non-academic staff, in the running of the universities, including also the sensitive sector of appointments.

This was done partly because the structure of the universities was no longer in line with the new requirements of a dramatically increased student population, which had multiplied sevenfold since the early 1950s. But also the politicians hoped that unrest in the universities would do out once the exclusive power of the professorate had given way to democratic self-government by the staff groups within the universities, having a say in the academic bodies.

The strong wave of discontent on the part of the students and substantial segments of the junior staff, especially the so-called *Assistants* (research assistants who are affiliated to individual professors) which emanated from the student revolution of 1967, culminated in widespread demands for fundamental changes in the university structures.

More important was their request for a re-orientation of university studies in all those fields related to society and politics. A strong Marxist, or rather romantic pseudo-Marxist, current took hold of the minds of a great many students, and for a time in many universities energetic efforts were made to change the curriculum in favour of left-wing views, and to introduce courses of a socialist or Marxist connotation.

The various leftist groups that became politically dominant on the campuses throughout the Federal Republic fought hard, moreover, to gain influence over appointments, mainly in order to ensure an adequate representation of Marxist views in the faculties.

Even though the role of the student bodies and of the junior staff, who were at times strongly influenced by this current, solutions were no longer negligible within the university bodies, these endeavours have had very little effect in the long run.

The courses with a sort of Marxist connotation disappeared again. Neither did the Marxist staff, securing major positions for Marx-

ists, or even for scholars with Marxist inclinations, with but a few exceptions. For one thing there were, and still are, but few reputed Marxist scholars in the Federal Republic in whom one could turn. In some cases, as in Bremen, junior scholars with strong leftist views were appointed instead, in the expectation that they would establish a scholarly reputation in due course; for the most part, however, no such thing came about.

The main result of these fights over appointments which today appear to have lost considerable momentum, has been a political polarization within the academic bodies. In a few faculties leftist trends indeed gained the upper hand; in most others the bulk of the staff closed ranks in order to keep extremists out.



Not without some governmental support, or at any rate with the connivance of the authorities, some universities like Bremen, Oldenburg, and perhaps Marburg, were allowed to become fairly leftist in outlook, and also a few *Fachbereiche* at the Free University of Berlin, though in the end, their leftist stance turned out to be rather meagre and confused, at any rate in the majority of cases.

Likewise, the governments of some Länder, controlled by the Social Democrats, had been rather inclined toward strengthening leftist views within the universities in order to ensure a fair equilibrium of views, social-democratic and Marxist positions included; but, however, this became increasingly concerned about the trend of things with mounting student unrest and the political groups on the campuses confining their efforts to the left of the Social Democrats.

Hence the authorities went into reverend fear. In a number of cases they began to interfere with the appointment of "Marxist" scholars, although rarely for top positions; the philosopher Arno Holke, for instance, was denied an appointment at the Free University of Berlin when the respective faculty had asked for him. More opportunist junior scholars of Marxist complexion found it

harder to get further promotion, whereas the radical climate had so far favoured their careers.

However, in general the composition of the teaching staff within the institutions of higher learning has only been marginally influenced by governmental interference of such a kind. The fact that the spectrum of views within the German academic community is somewhat blind on the left, must be accounted for primarily by the fact that the Marxist revival of the late 1960s was ephemeral.

Those scholars who can be said to be serious Marxist scholars, or to sympathize with Marxist views, like Abendroth, Offe, Senghaas or Narr do not owe their scholarly careers to the pseudo-Marxist revolt of the 1960s. Most of those who were swept into professorial chairs by the pseudo-Marxist tide have not been able to sustain their influence within the scientific community or even upon the scholarly body to any substantial degree.

Under the impact of mounting leftist pressures within the universities and eventually the emergence of terrorist activities in various forms, the authorities eventually began to enforce the principle, polemically referred to as *Berufsverbot*, that is to say that civil servants must not belong to extremist organizations and ought to be loyal adherents to the constitution, in the universities as well.

For a while many incoming scholars were subjected to a careful scrutiny as to their political standing before their appointments were implemented. However, this had no appreciable effect, as only a tiny minority were considered unreliable. But - undoubtedly - this practice created a climate of uneasiness on the campuses; and in particular the student bodies objected most violently to these methods.

It must be pointed out that this did influence the recruitment patterns to some degree as well, discouraging those with extreme views from pursuing university careers, though undoubtedly this point has been much overrated by many.

Even though we would not dispute the right of governments to employ only persons of undoubtedly democratic convictions in important positions, this practice should be discontinued at least in the academic sphere, legal difficulties notwithstanding.

It is indeed questionable whether university teachers ought to be treated in this respect just like other civil servants, or whether one should rather waive the principle that the state ought not to employ any persons who are openly and declaredly opposed to the present order of things; utmost tolerance

would seem advisable rather than adherence to the strict legalistic arguments in which the authorities in the Federal Republic have themselves been caught.

By now the practice of checking the political profile of every person to be appointed, which for a while amounted to a rather serious invasion of the private sphere of the individual concerned, has for the most part been abandoned, at any rate in those Länder governed by the Social Democrats and the Liberals. It is to be hoped that it will be abandoned soon altogether, as it is not really consistent with the principle of academic freedom.

However, in practical terms the so-called *Berufsverbot* was and is unimportant, if we restrict our judgement to the academic institutions only. For there were and are many candidates nominated by the academic bodies who could be considered at all as persons in which the governmental requirements on constitutional loyalty applied in any way whatever.

Consequently, direct governmental interference took place only in a fairly limited number of cases, and mostly with regard to renewal of employment contracts of members of the junior staff, in fact within the universities. The so-called *Berufsverbot* played only a marginal role, only because there were, and still are, but a few convinced Marxists competing for scholarly positions, and those who may be considered Marxists often have not succeeded in establishing their academic status beyond dispute.

There has been, according to our knowledge, but one case in which a professor in a position with tenure has been forced to give up his chair, the sociologist Bräuer at Hannover, due to his active propagation of "violence against property" as a legitimate means of social protest, and also due to his connections with the Heidelberg patients' collective.

Admittedly, however, there have been a number of cases in which heads of institutes have been prevented from getting permanent positions, largely, or at any rate partly due to their leftist views. But even this is to be regretted in principle, it must be pointed out, as it is designed to limit the influence of political and social compositions of the academic community in the Federal Republic.

Indeed, it seems to us that the informal recruitment patterns that determine the selection of academic staff over longer periods have been and still are far more important than any direct governmental interference in appointments, for political or, as it were, for other reasons. It would seem that the latter, at times have been beneficial rather than detrimental from the point of view of an adequate representation of all the various scholarly positions.

The political climate of the Federal Republic, with German as its immediate neighbour, does not lend itself to the mushrooming of serious Marxist or Communist ideas even among the intelligentsia at any rate not in their more liberal and Stalinist varieties.

In fact the academic community has not been permeated with strong Marxist currents, contrary to the fears expressed by not a few rightist journalists in the Federal Republic and elsewhere. Even though occasionally, but in this case in particular the academic community has reacted appropriately; scholars matters, liberal and conservative positions, have still predominated, though in many universities a hardening of opinions must be observed.

On the other hand, the period during which the liberal-conservative members were allowed to leave, albeit with a good deal of pain and outrage, and today not only dogmatic conservatism, but also necessary to fight back, after having been in many ways for more than two years.

This is reflected in many ways: the generalization of the younger generation of scholars, in the definition of a free, unbridled scholarly debate within a free society.

An illusion of freedom

order of the Federal Republic, is of little significance.

The real dangers to academic freedom are to be found within the academic community itself, namely in the tendency not to share the dominant paradigms, be they Marxist or Liberal or whatever connotation.

This trend is increased by the sudden dearth of jobs which has befallen the German university system since the overkill after 15 years of "fat" years - a situation which presents a very bleak future indeed to the next generation of scholars. Indeed, among the young generation of German scholars the rebellious mood which has been typical of their elders appears to have receded substantially; adjustment and cautious behaviour seem to have again become the rule.

During the last 20 years the German academic community has been fairly open-minded in its political orientations, even though it has sometimes over-reacted to the onslaught from the student left, and its followers among the junior staff and very rarely also the senior staff.

Right now the relative liberality of the system, which admittedly was assisted by a substantial increase in positions on all levels, appears to be seriously threatened. The fear of extremists and terrorists of the extreme left adds further strength to this tendency, even though it is by no means fully justified.

The desire for stability and order appears to be the dominant feature of the political self-awareness of the Federal Republic. It reflects the opinions of a society which in its majority is proud of its economic and social achievements since 1945 and which is wary of an intelligentsia constantly questioning these achievements.

This conservative trend influences the atmosphere on the campuses too, and this clearly does not favour the free, uninhibited exchange of scholarly views and the pursuit of hitherto untrodden lines of research.

All in all, it may be said that in legal terms academic freedom is well established in the Federal Republic, and it cannot be said that the policy somewhat erroneously labelled *Berufsverbot* which is designed to limit the influence of political and social compositions of the academic community in the Federal Republic.

Recently a number of German Academics were prosecuted because they republished the infamous Mauthausen-Article in which, in a guarded way, the murder of Schöleyer was welcomed; but the case was thrown out by various courts. The danger that this might lead to a general violation of the principle of academic freedom and freedom of speech fortunately did not materialize.

To the chagrin of not a few right-wing politicians, German academics are still fairly free to voice radical opinions, even though they may be disquieting to the public at large. This is unfortunate, for the sake of rightist views, even though public propagation of National Socialist ideas is still forbidden by law.

As the unfortunate German history by Helmuth Diwald shows, rather preposterous views as to the role of the National Socialist regime came to the fore again occasionally. But in this case in particular the academic community has reacted appropriately; scholars matters, liberal and conservative positions, have still predominated, though in many universities a hardening of opinions must be observed.

In all, the academic community in the Federal Republic is aware of its public responsibilities. On the other hand, conservative sentiments do seem to be in the ascendancy, and the decline of mobility and available positions may for more than two years.

This is reflected in many ways: the generalization of the younger generation of scholars, in the definition of a free, unbridled scholarly debate within a free society.

The author is director of the German Historical Institute in London.

The Making of Mind: a personal account of Soviet psychology by A. R. Luria
Harvard University Press, £9.00
ISBN 0 674 54326 2

by J. K. Wing

Alexander Romanovich Luria, the best-known Soviet psychologist of his generation, was born in Kazan in eastern Russia in 1902 and died in 1977. This brief autobiography, written in English, will be read with special interest by those who remember the impact of his personality and intellect during his visits to Western Europe and the United States in the 1950s and 1960s and also by those who are curious about Soviet science in general, since progress in the behavioural sciences must have been intimately affected by fluctuations in the way Marxist theories were applied after the revolution.

When, in 1921, Luria graduated from the University of Kazan, he found psychology stagnating. Little progress had been made since the time of Wundt and Bekhterev, who had thought that only "elementary" psychological functions, from which all meaning had been eliminated, could be studied scientifically. The aim of research was to discover the laws that regulated the behaviour observed in laboratory experiments with isolated lights and tones or nonsense syllables. Luria regarded himself as a physiologist, not a psychologist, and Bekhterev's "reflexology" deliberately avoided the study of conscious processes.

Luria, who could read English, French and German, became interested in the ideas of the psychoanalysts and of the Gestalt school. After being invited to Korovnikov's Institute of Psychology in Moscow, he studied the effect of verbal stimuli (neutral or emotionally loaded) on motor reactions, using not only volunteer subjects but people under criminal investigation, including murderers. "Our laboratory data suggested that if we knew details of the crime, they could be used as the critical test in the combined motor test, and we could use the resulting data to reconstruct the events and determine who was guilty... we were able to work with suspects from the time of arrest until after their trials." Luria's early model of a lie detector was later found useful by criminologists.

Luria's interest in neuropsychology was far ahead of his time in Russia but he himself dated the start of his career from 1924, with Lev Semionovich Vigotsky, whom he regarded as a creative genius. Vigotsky wished to reintroduce the scientific study of the higher psychological processes, including consciousness, memory, action, voluntary attention, active memorizing and abstract thought. He introduced Luria to the work of comparative biologists like Wagner and Köhler and of developmental psychologists like Piaget. His conviction was that the conscious activities of human beings could best be studied in their relationships with the social environment, which were chiefly regulated through the mediation of language. This approach he called "cultural" or "historical" psychology.

Vigotsky died of tuberculosis in 1932 but Luria attributed most of his own success to the working out of this seminal idea. He and his colleagues studied the development of language in young children, the psychological differences between rural and urban communities in the USSR, and the differences between identical and non-identical twins of different ages. On the other, they studied the processes of dissolution and reorganization of higher psychological functions, like memory, with "brain damage".

The work on cultural differences in modes of thinking was undertaken in order to test the theory of Lev-Bruhl (who argued that "primitive" people used crude rules of thinking, compared with that of "civilized" people) which suggested that intellectual mechanisms are much the same, although the learned categories used are different.

BOOKS

A psychologist ahead of his time



A. R. Luria: "a man who sensed the presence of important scientific undertakings without being able to take advantage of them to create a new discipline."

only data available at the time were anecdotal. Luria collected more pertinent material, using a group problem-solving technique and specially-developed cognitive tests, from people living in remote villages in Uzbekistan and from more educated groups. The data were never published in detail and it is difficult to draw conclusions from Luria's brief account except for the fairly obvious fact that culture and education affect the way in which experiences are categorized. He certainly did not understand the complexity of so-called "primitive" cultures and was criticized during the mid-1930s for "negative value judgements".

Much the same is true of Luria's studies of twins, which were designed to test the assumption that heredity had a stronger influence on "elementary" cognitive processes than on those that involved culturally mediated (language-based) processes. The argument was that there would be greater differences between non-identical twins than between identical twins on a "natural" task, such as a perceptual figure recognition test. In five to seven-year-old children and in those aged 11 to 13 years, however, a culturally-mediated memory task (words and pictures) would reveal less variation between the two sets of twins than the older, more "culturally-mediated" tasks. This is what Luria claims to have found although, again, the published data are too slight to permit a judgment. And, again, the work was brought to a halt in the mid-1930s because of an increasing suspicion of genetic studies at that time. Luria gave up his researches and returned to the study of medicine that he had earlier abandoned in order to pursue a career in psychology.

Much of Luria's subsequent work was concerned with the nature and treatment of aphasia, brain injuries and mental retardation. He was much influenced by Hughlings Jackson's formulation that most psychological functions are of an increasing complexity of generalization of the nervous system. Lesions, therefore, not only have specific effects depending on their "horizontal" location but more general consequences due to their interference with the "vertical" organization. In terms of Vigotsky's concept, people with aphasia are forced to use "natural" rather than "mediated" processes because of the disturbance of language functions. This simply translates one theory into the terms of another without much advancing understanding.

During the Second World War, Luria was concerned with the rehabilitation of people with brain injuries. His enthusiasm must have been as important as his retraining methods in inspiring patients to achieve the highest level of functional possibility. His book on traumatic brain injury was published in the Soviet Union in 1927, 1937, 1947, 1957, 1967, 1977, 1987, 1997, 2007, 2017, 2027, 2037, 2047, 2057, 2067, 2077, 2087, 2097, 2107, 2117, 2127, 2137, 2147, 2157, 2167, 2177, 2187, 2197, 2207, 2217, 2227, 2237, 2247, 2257, 2267, 2277, 2287, 2297, 2307, 2317, 2327, 2337, 2347, 2357, 2367, 2377, 2387, 2397, 2407, 2417, 2427, 2437, 2447, 2457, 2467, 2477, 2487, 2497, 2507, 2517, 2527, 2537, 2547, 2557, 2567, 2577, 2587, 2597, 2607, 2617, 2627, 2637, 2647, 2657, 2667, 2677, 2687, 2697, 2707, 2717, 2727, 2737, 2747, 2757, 2767, 2777, 2787, 2797, 2807, 2817, 2827, 2837, 2847, 2857, 2867, 2877, 2887, 2897, 2907, 2917, 2927, 2937, 2947, 2957, 2967, 2977, 2987, 2997, 3007, 3017, 3027, 3037, 3047, 3057, 3067, 3077, 3087, 3097, 3107, 3117, 3127, 3137, 3147, 3157, 3167, 3177, 3187, 3197, 3207, 3217, 3227, 3237, 3247, 3257, 3267, 3277, 3287, 3297, 3307, 3317, 3327, 3337, 3347, 3357, 3367, 3377, 3387, 3397, 3407, 3417, 3427, 3437, 3447, 3457, 3467, 3477, 3487, 3497, 3507, 3517, 3527, 3537, 3547, 3557, 3567, 3577, 3587, 3597, 3607, 3617, 3627, 3637, 3647, 3657, 3667, 3677, 3687, 3697, 3707, 3717, 3727, 3737, 3747, 3757, 3767, 3777, 3787, 3797, 3807, 3817, 3827, 3837, 3847, 3857, 3867, 3877, 3887, 3897, 3907, 3917, 3927, 3937, 3947, 3957, 3967, 3977, 3987, 3997, 4007, 4017, 4027, 4037, 4047, 4057, 4067, 4077, 4087, 4097, 4107, 4117, 4127, 4137, 4147, 4157, 4167, 4177, 4187, 4197, 4207, 4217, 4227, 4237, 4247, 4257, 4267, 4277, 4287, 4297, 4307, 4317, 4327, 4337, 4347, 4357, 4367, 4377, 4387, 4397, 4407, 4417, 4427, 4437, 4447, 4457, 4467, 4477, 4487, 4497, 4507, 4517, 4527, 4537, 4547, 4557, 4567, 4577, 4587, 4597, 4607, 4617, 4627, 4637, 4647, 4657, 4667, 4677, 4687, 4697, 4707, 4717, 4727, 4737, 4747, 4757, 4767, 4777, 4787, 4797, 4807, 4817, 4827, 4837, 4847, 4857, 4867, 4877, 4887, 4897, 4907, 4917, 4927, 4937, 4947, 4957, 4967, 4977, 4987, 4997, 5007, 5017, 5027, 5037, 5047, 5057, 5067, 5077, 5087, 5097, 5107, 5117, 5127, 5137, 5147, 5157, 5167, 5177, 5187, 5197, 5207, 5217, 5227, 5237, 5247, 5257, 5267, 5277, 5287, 5297, 5307, 5317, 5327, 5337, 5347, 5357, 5367, 5377, 5387, 5397, 5407, 5417, 5427, 5437, 5447, 5457, 5467, 5477, 5487, 5497, 5507, 5517, 5527, 5537, 5547, 5557, 5567, 5577, 5587, 5597, 5607, 5617, 5627, 5637, 5647, 5657, 5667, 5677, 5687, 5697, 5707, 5717, 5727, 5737, 5747, 5757, 5767, 5777, 5787, 5797, 5807, 5817, 5827, 5837, 5847, 5857, 5867, 5877, 5887, 5897, 5907, 5917, 5927, 5937, 5947, 5957, 5967, 5977, 5987, 5997, 6007, 6017, 6027, 6037, 6047, 6057, 6067, 6077, 6087, 6097, 6107, 6117, 6127, 6137, 6147, 6157, 6167, 6177, 6187, 6197, 6207, 6217, 6227, 6237, 6247, 6257, 6267, 6277, 6287, 6297, 6307, 6317, 6327, 6337, 6347, 6357, 6367, 6377, 6387, 6397, 6407, 6417, 6427, 6437, 6447, 6457, 6467, 6477, 6487, 6497, 6507, 6517, 6527, 6537, 6547, 6557, 6567, 6577, 6587, 6597, 6607, 6617, 6627, 6637, 6647, 6657, 6667, 6677, 6687, 6697, 6707, 6717, 6727, 6737, 6747, 6757, 6767, 6777, 6787, 6797, 6807, 6817, 6827, 6837, 6847, 6857, 6867, 6877, 6887, 6897, 6907, 6917, 6927, 6937, 6947, 6957, 6967, 6977, 6987, 6997, 7007, 7017, 7027, 7037, 7047, 7057, 7067, 7077, 7087, 7097, 7107, 7117, 7127, 7137, 7147, 7157, 7167, 7177, 7187, 7197, 7207, 7217, 7227, 7237, 7247, 7257, 7267, 7277, 7287, 7297, 7307, 7317, 7327, 7337, 7347, 7357, 7367, 7377, 7387, 7397, 7407, 7417, 7427, 7437, 7447, 7457, 7467, 7477, 7487, 7497, 7507, 7517, 7527, 7537, 7547, 7557, 7567, 7577, 7587, 7597, 7607, 7617, 7627, 7637, 7647, 7657, 7667, 7677, 7687, 7697, 7707, 7717, 7727, 7737, 7747, 7757, 7767, 7777, 7787, 7797, 7807, 7817, 7827, 7837, 7847, 7857, 7867, 7877, 7887, 7897, 7907, 7917, 7927, 7937, 7947, 7957, 7967, 7977, 7987, 7997, 8007, 8017, 8027, 8037, 8047, 8057, 8067, 8077, 8087, 8097, 8107, 8117, 8127, 8137, 8147, 8157, 8167, 8177, 8187, 8197, 8207, 8217, 8227, 8237, 8247, 8257, 8267, 8277, 8287, 8297, 8307, 8317, 8327, 8337, 8347, 8357, 8367, 8377, 8387, 8397, 8407, 8417, 8427, 8437, 8447, 8457, 8467, 8477, 8487, 8497, 8507, 8517, 8527, 8537, 8547, 8557, 8567, 8577, 8587, 8597, 8607, 8617, 8627, 8637, 8647, 8657, 8667, 8677, 8687, 8697, 8707, 8717, 8727, 8737, 8747, 8757, 8767, 8777, 8787, 8797, 8807, 8817, 8827, 8837, 8847, 8857, 8867, 8877, 8887, 8897, 8907, 8917, 8927, 8937, 8947, 8957, 8967, 8977, 8987, 8997, 9007, 9017, 9027, 9037, 9047, 9057, 9067, 9077, 9087, 9097, 9107, 9117, 9127, 9137, 9147, 9157, 9167, 9177, 9187, 9197, 9207, 9217, 9227, 9237, 9247, 9257, 9267, 9277, 9287, 9297, 9307, 9317, 9327, 9337, 9347, 9357, 9367, 9377, 9387, 9397, 9407, 9417, 9427, 9437,

BOOKS

Group discussions

• *Chlorophyll a* (Chl *a*)

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Applications are invited for the following posts from as early a date as possible:

Academic Staff

PROFESSOR/SENIOR LECTURER IN COMPUTER SCIENCE
SENIOR LECTURER/LECTURER IN INORGANIC CHEMISTRY
SENIOR LECTURER/LECTURER IN MATHEMATICAL STATISTICS
LECTURER/JUNIOR LECTURER IN MICROBIOLOGY
LECTURER/JUNIOR LECTURER IN TRANSLATION OR LINGUISTICS

Non-Academic Staff

REGISTRAR (non-Res.)
DEPUTY DIRECTOR OF BUSINESS AFFAIRS

The salary scales are:
PROFESSOR — R15,000 + 600-18,000 per annum
SENIOR LECTURER — R11,400 + 600-16,000 per annum
LECTURER — R7,300 + 400-12,000 per annum
JUNIOR LECTURER — R5,800 + 400-8,500 per annum
DEPUTY DIRECTOR — R11,500 + 400-12,000 + 600-16,000 p.a.
(Note: 21 starting approx. R1,73)

The initial salary in each case will be determined according to qualifications and experience. Additional large benefits include pension, medical, housing, and other facilities. The University offers a wide range of housing and other facilities. The salary attached to the post of Registrar will be subject to a probationary period.

Further particulars and application forms may be obtained from the Registrar, Rhodes University, Grahamstown, South Africa. Closing date for applications is 30 April 1980.

THE UNIVERSITY OF NEW ENGLAND AUSTRALIA

PROFESSOR OF HISTORY

Applications are invited for the Chair in History that has fallen vacant on the retirement of Professor R. B. Ward. The Appointment will be made in the area of Australian History.

The Department offers courses for both internal and external students. The appointee will be called upon from time to time to serve as Head of Department. The other chair in the Department is held by Professor S. A. Armstrong whose area of specialization is South and Southeast Asia.

The current professorial salary is \$435,654 per annum. The University will pay travel expenses for the appointee and assistance in obtaining finance for building or buying a home. The appointee will be eligible to apply for Study Leave with appropriate travel grants.

Full particulars and application procedure can be obtained from the Staff Officer, The University of New England, Armidale, New South Wales 2351, Australia, or from the Secretary General, Association of Commonwealth Universities (App), 36 Gordon Square, London WC1H 0PP. Applications close on 30 May 1980.

Final offers may be directed to the present Head of Department, Mr G. R. Quill, in the University.

Coláiste na hOllscoile Corcaigh UNIVERSITY COLLEGE CORK

Statutory Lectureship in Computer Science

Applications are invited for the above vacant office. The salary range is: £9,263-£12,185 p.a.

Application form and further details of the post may be obtained from the undersigned.

Latest date for receipt of applications is Friday, May 2, 1980.

M. F. Kelleher, Secretary.



LAW LECTURER

(Company/Commercial Law preferred)

Salary: £5,052-£10,484

Requests (quoting Ref. THES) for details and application form to Personnel Section (Academic), UWIST, Cardiff CF1 3NU.

Closing date: 2 May 1980

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UNIVERSITY OF CAMBRIDGE

Librarianship
Centre of South Asian Studies from October 1, 1980, or soon thereafter. The Secretary-Librarian has administrative responsibilities for the Centre, its Library and Archive.

Applicants should hold a degree and have, or be willing to acquire, an interest in South Asia. Experience of librarianship and office administration is desirable.

Appointment and re-appointment will be for periods not exceeding five years at a time.

Scale of stipend is £6,399 to £8,769.

Further information from the Director of the Centre of South Asian Studies, Landis Lane, Cambridge CB2 1RQ, to whom applications (fifteen/25 copies) including a curriculum vitae and the names and addresses of at least two referees, should be sent so as to reach him by April 25th, 1980.

BATH THE UNIVERSITY

SCHOOL OF PHARMACY AND PHARMACOLOGY

POST-DOCTORAL RESEARCH CHAIRMAN

Applications are invited for the above post from individuals with a PhD in Pharmacy, Chemistry or Pharmacology, who have postgraduate research experience in the field of drug metabolism and pharmacokinetics.

The successful candidate will be expected to teach and supervise postgraduate students, and to be involved in the development of the School's research programme.

Applicants should send a curriculum vitae and the names and addresses of three referees to the Secretary, School of Pharmacy and Pharmacology, Bath University, Bath BA2 9AY. Closing date: 1 May 1980.

BATH THE UNIVERSITY

COURT SUPERVISOR

Applications are invited for the post of Court Supervisor in the well-established Court of the University of Bath. The post holder will be responsible for the supervision of the Court's activities and for the management of the Court's finances.

The successful candidate will be expected to manage the Court's activities and for the management of the Court's finances.

Applicants should send a curriculum vitae and the names and addresses of three referees to the Secretary, Bath University, Bath BA2 9AY. Closing date: 1 May 1980.

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Cardiff

UNIVERSITY COLLEGE

Applications are invited for the post of Lecturer in the School of Medicine. The successful candidate will be expected to teach and supervise postgraduate students, and to be involved in the development of the School's research programme.

Applicants should send a curriculum vitae and the names and addresses of three referees to the Secretary, University College, Cardiff CF1 3NU. Closing date: 1 May 1980.

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Universities continued

LONDON

THE UNIVERSITY OF LONDON

Applications are invited for the post of Lecturer in the School of Medicine. The successful candidate will be expected to teach and supervise postgraduate students, and to be involved in the development of the School's research programme.

Applicants should send a curriculum vitae and the names and addresses of three referees to the Secretary, University of London, London WC1E 6BT. Closing date: 1 May 1980.

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Applicants should send a curriculum vitae and the names and

Fellowships and Studentships



DEPARTMENT OF GEOGRAPHY

N.E.R.C. Research Studentship

in Physical Geography

Applications are invited for a research studentship commencing in October 1980, leading to the degree of Ph.D. of the University of Wales. The research programme is under the supervision of Professor N. Stephens, Dr A. H. Perry and Dr R. Walsh will be within one of the following fields:

- Hydrological effects of recent climatic changes in the Swansea.
 - Physiographic history of the Swansea Bay dune system.
 - Changes in the magnitude-frequency of heavy rainfall in the British Isles.
- Applications indicating the topic of the proposed research, together with a curriculum vitae and the names of two referees should be sent to: Professor N. Stephens, Department of Geography, University College Swansea, Singleton Park, Swansea, SA2 8PP by 2nd May, 1980.

AUSTRALIA

U.S. HIGHER EDUCATION AWARD. Applications are invited for a research studentship commencing in October 1980, leading to the degree of Ph.D. of the University of Wales. The research programme is under the supervision of Professor N. Stephens, Dr A. H. Perry and Dr R. Walsh will be within one of the following fields:

Applications indicating the topic of the proposed research, together with a curriculum vitae and the names of two referees should be sent to: Professor N. Stephens, Department of Geography, University College Swansea, Singleton Park, Swansea, SA2 8PP by 2nd May, 1980.

EDINBURGH

THE UNIVERSITY OF EDINBURGH
DEPARTMENT OF ARTS
SOCIAL SCIENCE RESEARCH COUNCIL STUDENTSHIP

Applications are invited for a research studentship commencing in October 1980, leading to the degree of Ph.D. of the University of Wales. The research programme is under the supervision of Professor N. Stephens, Dr A. H. Perry and Dr R. Walsh will be within one of the following fields:

Applications indicating the topic of the proposed research, together with a curriculum vitae and the names of two referees should be sent to: Professor N. Stephens, Department of Geography, University College Swansea, Singleton Park, Swansea, SA2 8PP by 2nd May, 1980.

Holidays and Accommodation

PROJECT 67

Applications are invited for a research studentship commencing in October 1980, leading to the degree of Ph.D. of the University of Wales. The research programme is under the supervision of Professor N. Stephens, Dr A. H. Perry and Dr R. Walsh will be within one of the following fields:

Applications indicating the topic of the proposed research, together with a curriculum vitae and the names of two referees should be sent to: Professor N. Stephens, Department of Geography, University College Swansea, Singleton Park, Swansea, SA2 8PP by 2nd May, 1980.

For Sale and Wanted

OXFORD

Applications are invited for a research studentship commencing in October 1980, leading to the degree of Ph.D. of the University of Wales. The research programme is under the supervision of Professor N. Stephens, Dr A. H. Perry and Dr R. Walsh will be within one of the following fields:

Applications indicating the topic of the proposed research, together with a curriculum vitae and the names of two referees should be sent to: Professor N. Stephens, Department of Geography, University College Swansea, Singleton Park, Swansea, SA2 8PP by 2nd May, 1980.

Personal

IMMEDIATE ADVANCES

Applications are invited for a research studentship commencing in October 1980, leading to the degree of Ph.D. of the University of Wales. The research programme is under the supervision of Professor N. Stephens, Dr A. H. Perry and Dr R. Walsh will be within one of the following fields:

Applications indicating the topic of the proposed research, together with a curriculum vitae and the names of two referees should be sent to: Professor N. Stephens, Department of Geography, University College Swansea, Singleton Park, Swansea, SA2 8PP by 2nd May, 1980.

Courses

SOUTH DEVON

Applications are invited for a research studentship commencing in October 1980, leading to the degree of Ph.D. of the University of Wales. The research programme is under the supervision of Professor N. Stephens, Dr A. H. Perry and Dr R. Walsh will be within one of the following fields:

Applications indicating the topic of the proposed research, together with a curriculum vitae and the names of two referees should be sent to: Professor N. Stephens, Department of Geography, University College Swansea, Singleton Park, Swansea, SA2 8PP by 2nd May, 1980.

Colleges and Institutes of Technology

METROPOLITAN BOROUGH OF STOCKPORT

Stockport College of Technology

PRINCIPAL LECTURER IN CHEMISTRY and DEPUTY HEAD OF DEPARTMENT OF SCIENCE

Applications are invited for this post; duties to commence 1 September, 1980. The post will include responsibility as team leader for the C.N.A.A. part-time honours degree course in Chemistry, as well as administrative responsibility for Chemistry.

Salary Scale: Principal Lecturer: £7,880-£9,638 plus interim award (salary under review).

Application forms and further particulars from The Principal, Stockport College of Technology, Wellington Road South, Stockport SK1 3UD, on receipt of a stamped self-addressed envelope, quoting reference 561. Applications to be returned to the Principal by 30 April, 1980.

Colleges and Institutes of Higher Education

Athrofa Gogledd-dd Cymru

The North Wales Institute of Higher Education

School of Management Business and Trade Union Studies

Principal Lecturer in small business organization

A suitably qualified and experienced person required to take charge of a programme, under an urban aid grant, to establish a centre to provide appropriate training programmes to meet the needs of small businesses and to strengthen local consultancy/advisory services for new and existing small enterprises.

Form of application and further details from the Institute Registrar, North East Wales Institute, Kebleton College, Connaught Quay, Clwyd, Tel. No. Deside 81236, to whom completed forms should be returned within 14 days of the appearance of this advertisement.

CHELMER

Essex Institute of Higher Education

DEPARTMENT OF LAW
LECTURESHIP IN LAW

A Lecturer Grade I or II is required for B.A. (Hons.) Law Degree Course. Teaching experience is not essential. Salary: Lecturer I £3,768 to £6,438 per annum. Lecturer II £4,008 to £6,688 per annum.

Application forms and further details available from the Institute Secretary, Chelmer Institute of Higher Education, Victoria Road South, Chelmsford, CM1 1LL, to whom they should be returned within 14 days of the date of this advertisement. Telephone Chelmsford 354491 Ext. 221.

Technical Colleges

WILTSHIRE - COLLEGES

Applications are invited for a research studentship commencing in October 1980, leading to the degree of Ph.D. of the University of Wales. The research programme is under the supervision of Professor N. Stephens, Dr A. H. Perry and Dr R. Walsh will be within one of the following fields:

Applications indicating the topic of the proposed research, together with a curriculum vitae and the names of two referees should be sent to: Professor N. Stephens, Department of Geography, University College Swansea, Singleton Park, Swansea, SA2 8PP by 2nd May, 1980.

Department of Engineering

SENIOR LECTURER

Applications are invited for a research studentship commencing in October 1980, leading to the degree of Ph.D. of the University of Wales. The research programme is under the supervision of Professor N. Stephens, Dr A. H. Perry and Dr R. Walsh will be within one of the following fields:

Applications indicating the topic of the proposed research, together with a curriculum vitae and the names of two referees should be sent to: Professor N. Stephens, Department of Geography, University College Swansea, Singleton Park, Swansea, SA2 8PP by 2nd May, 1980.

SOUTH DEVON

Applications are invited for a research studentship commencing in October 1980, leading to the degree of Ph.D. of the University of Wales. The research programme is under the supervision of Professor N. Stephens, Dr A. H. Perry and Dr R. Walsh will be within one of the following fields:

Applications indicating the topic of the proposed research, together with a curriculum vitae and the names of two referees should be sent to: Professor N. Stephens, Department of Geography, University College Swansea, Singleton Park, Swansea, SA2 8PP by 2nd May, 1980.

WILTSHIRE - COLLEGES

Applications are invited for a research studentship commencing in October 1980, leading to the degree of Ph.D. of the University of Wales. The research programme is under the supervision of Professor N. Stephens, Dr A. H. Perry and Dr R. Walsh will be within one of the following fields:

Applications indicating the topic of the proposed research, together with a curriculum vitae and the names of two referees should be sent to: Professor N. Stephens, Department of Geography, University College Swansea, Singleton Park, Swansea, SA2 8PP by 2nd May, 1980.

Colleges of Further Education

Bournemouth and Poole College of Further Education

DEPARTMENT OF ENGINEERING TECHNOLOGY

Principal Lecturer in Electronics and Microprocessor Application Technology (ST 201)

Applications are invited from well-qualified and experienced persons for this post, concerned with Curriculum development related to Computer Technology and the Application of Microprocessors and the development of new courses designed locally to meet the needs of the industry.

Salary: £6,236 to £8,162 (per) to £10,362 p.a. Further details of application forms from Principal's Secretary, North Road, Poole, Dorset, (Tel. 0204 74700). Forms to be returned within 2 weeks of the advertisement.

Surrey County Council

EPSOM SCHOOL OF ART AND DESIGN

DEPARTMENT OF COMMUNICATION DESIGN

PRINCIPAL LECTURER

Applications are invited from well-qualified and experienced persons for this post, concerned with Curriculum development related to Computer Technology and the Application of Microprocessors and the development of new courses designed locally to meet the needs of the industry.

Salary: £6,236 to £8,162 (per) to £10,362 p.a. Further details of application forms from Principal's Secretary, North Road, Poole, Dorset, (Tel. 0204 74700). Forms to be returned within 2 weeks of the advertisement.

LECTURER Grade 1

To take charge of the First Year of the Audio Visual Design Technicians course. Applicants should be qualified in photography and possess a broad working knowledge of film, television, sound recording and reproduction processes. A basic knowledge of electronics would be an additional advantage.

Salary Scale: £3,768 to £6,438 plus Surrey Allowance of £177.

Full details and application forms from The Chief Administrative Officer, Surrey School of Art and Design, Ashley Road, Epsom, Surrey.

All advertisements are subject to the conditions of the Times Newspapers Ltd. copies of which are available on request.

Administration

Southampton THE UNIVERSITY

Administrative Assistant

Applications are invited from graduates and other suitably qualified persons for appointment to a post of Administrative Assistant in the Office of the Academic Registrar's Staff. The person appointed will be primarily concerned with administrative arrangements for postgraduate medical education. Salary on Administrative scale 1A £4,402 to £6,768 per annum (under review).

Further particulars of the appointment may be obtained from Mr A. J. Smith, 363, The University, Southampton SO9 5BH, to whom applications together with a curriculum vitae and giving the names of three referees should be returned by 28 April, 1980, quoting reference 80/144/THES.

LONDON S.W.1

CAM FOUNDATION

Applications are invited for a research studentship commencing in October 1980, leading to the degree of Ph.D. of the University of Wales. The research programme is under the supervision of Professor N. Stephens, Dr A. H. Perry and Dr R. Walsh will be within one of the following fields:

Applications indicating the topic of the proposed research, together with a curriculum vitae and the names of two referees should be sent to: Professor N. Stephens, Department of Geography, University College Swansea, Singleton Park, Swansea, SA2 8PP by 2nd May, 1980.

The successful applicant will be responsible for the administration of the Cambridge Foundation for the Study of the History of the English Language.

Further details and application forms available from Principal, Cambridge Foundation, 100, The Strand, London WC2R 0AL.

Applications to be returned to the Principal by 30 April, 1980.

Telephone 01-897 1234 Ext. 437.

Applications to be returned to the Principal by 30 April, 1980.

Miscellaneous

TECHNICIAN EDUCATION COUNCIL

Appointment of FULL-TIME EXTERNAL MODERATORS

The Council invites applications for five new appointments as full-time External Moderators from 1 September 1980. The full and part-time Moderators play a key role in establishing and maintaining the standards of the Council's awards by monitoring the operation of TEC programmes and assessment arrangements. The responsibilities of the full-time Moderators include co-ordinating the work of the part-time Moderators.

These posts may be filled by appointment to the Council's service or by secondment from an existing post.

Applications are invited for three posts available as follows:

- Mechanical Engineering based in the Midlands.
 - Building Subjects based in the North London area.
 - Chemistry based in the North Midlands, Lancashire or Yorkshire.
- Applications for the above posts should have current or recent relevant experience and qualifications appropriate to the full range of TEC awards.

Art and Design

Applications are also invited for two posts in the Art and Design field, one based in the South of the country and the other in the North.

Applicants should have substantial practice in a range of design disciplines including experience in organising art and design work and/or assessing for a professional body. The salary scale for these posts is related to that for Grade III Heads of Department. Starting salary will depend upon previous experience and qualifications. Further details of the appointments can be obtained from:

The Deputy Chief Officer
Technician Education Council
76 Portland Place
London W1N 4AA

The closing date for applications is Monday 5 May, 1980.

General Vacancies

WORLD UNIVERSITY SERVICE (UK)

ENGLISH LANGUAGE COURSE ORGANIZERS

Two people are required from May to 30 September, 1980, to set up English Language vacation courses for Latin American academic refugees. Previous experience of selecting and training teachers will be necessary as well as experience of teaching academic skills to foreign students. Candidates will need to have typing and administrative skills and ability to work on own initiative. One person will be responsible for courses in London area and the other for regional courses. Salary will be pro-rated on £4,379 per annum (under review).

Closing date for completed applications 23 April, 1980. For further details contact Kathy McGuinness, World University Service (UK), 20/21 Compton Terrace, London N1 2UN. Telephone: (01) 226 6747.

Overseas

THE UNIVERSITY OF CALGARY

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

Applications are invited for positions of Assistant Professor. Qualifications include a Masters or Ph.D. degree, plus experience in applied research.

POSITION 1: Special Education

The person appointed will have a sound general knowledge of the field of Special Education and practical experience in teaching or allied profession.

POSITION 2: Clinical, School and Community Psychology

The person appointed will have a sound knowledge of assessment and therapeutic techniques.

Effective date of appointment may be either July 1 or September 1, 1980.

Applications should be sent to Dr. R. I. Brown, Head, Department of Educational Psychology, The University of Calgary, 2500 University Drive N.W., Calgary, Alberta, Canada, T2N 1N4, and include detailed curriculum vitae and the names and addresses of three referees.

Applications to be returned to the Principal by 30 April, 1980.

Telephone 01-897 1234 Ext. 437.

Applications to be returned to the Principal by 30 April, 1980.

Telephone 01-897 1234 Ext. 437.

THE UNIVERSITY OF CALGARY

FACULTY OF EDUCATION

UNIVERSITY OF CALGARY

requires a PROGRAM DIRECTOR EARLY CHILDHOOD EDUCATION

To implement a new Early Childhood program leading to the B.Ed. degree. Duties to include co-ordination and integration of departmental and faculty contributions to the program, liaison with field agencies involved in Early Childhood Services, plus some teaching responsibilities.

Criteria for selection will include: (1) appropriate postgraduate work early childhood education or related area; (2) field experience in an early childhood education setting; (3) an approach compatible with Alberta Early Childhood Services philosophy; (4) proven ability to work co-operatively in a collegial setting.

Academic rank dependent on qualifications and experience. Director will report to the Dean, Faculty of Education. Appointment to begin July 1, 1980, subject to confirmation of funding.

Applications, together with curriculum vitae and names of three referees should be submitted prior to May 30, 1980, and should be addressed to:

Dr. Robert M. Stamp
Chairman, ECS Search Committee
Education Tower 1310
The University of Calgary
2500 University Dr. N.W.
Calgary, Alberta, Canada
T2N 1N4

STURT COLLEGE OF ADVANCED EDUCATION

SOUTH AUSTRALIA

Sturt College of Advanced Education situated in the southern metropolitan area of Adelaide, South Australia, prepares students for the teaching and health professions.

Applications are invited for the following position:

LECTURER IN PHYSICAL EDUCATION (PE 1/80)

The appointee will be expected to teach a wide range of both theoretical and practical aspects of Physical Education. In particular, there will be a heavy involvement in the teaching of primary curriculum studies and secondary methodology, and in the supervision of students in schools. Hence teaching experience is essential.

Applicants should possess good qualifications in Physical Education, should be skilled in teaching physical activity, and be able to demonstrate competence in teaching at a tertiary level. The appointee will be expected to teach at least all or some of the following: Growth and Development; Skill Learning; Measurement and Evaluation; and Biomechanics. The appointee will be expected to teach at least all or some of the following: Growth and Development; Skill Learning; Measurement and Evaluation; and Biomechanics. The appointee will be expected to teach at least all or some of the following: Growth and Development; Skill Learning; Measurement and Evaluation; and Biomechanics.

Closing date for applications: Friday 2nd May, 1980. Applicants should forward a curriculum vitae, including personal details, particulars of qualifications, experience, previous appointments, and the names and addresses of three referees who have known the applicant for at least two years, to the Principal, Sturt College of Advanced Education, Sturt Road, Bedford Park, South Australia, 5042. Telephone (08) 276 8088.

THE ACADEMIC SECRETARY
STURT COLLEGE OF ADVANCED EDUCATION
STURT ROAD, BEDFORD PARK, SOUTH AUSTRALIA, 5042
Telephone (08) 276 8088

AUSTRALIA

ROYAL MELBOURNE INSTITUTE OF TECHNOLOGY LIMITED

HEAD DEPARTMENT OF APPLIED ECONOMICS FACULTY OF BUSINESS

The Department, formed on 1st January 1980, is responsible for the Bachelor of Business with major studies in Transport Economics and for a wide range of service teaching for all Faculties at the Institute. The Head, who will possess higher degree qualifications in economics, business or commerce, will be responsible for the academic and professional leadership of the Department and its further development, and will be expected to contribute to the general administration of the Faculty and the Institute.

Salary A\$40,108 p.a.

A position description should be obtained from Staff Branch, RMIT, 777 Victoria St., Melbourne 3001. Applications quoting ref. no. 164-01-AN to the Registrar by May 2, 1980.



Singapore Polytechnic, located at the southern tip of Pulau Ubin, is a leading institution in the field of technical education in the Singapore. It is a leading institution in the field of technical education in the Singapore. It is a leading institution in the field of technical education in the Singapore.

Applicants are invited from suitably qualified persons for the following positions:

PRINCIPAL LECTURER SENIOR LECTURER LECTURER

In the following departments and divisions:

(a) CIVIL ENGINEERING & BUILDING DEPARTMENT

A degree or professional qualification in Civil Engineering, Building, Architecture or Land Surveying.

(b) ELECTRICAL ENGINEERING DEPARTMENT

A degree or professional qualification in Electrical Engineering with preferably three years' industrial experience.

(c) ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT

A degree or professional qualification in Electronic Engineering with preferably three years' industrial experience.

(d) MECHANICAL & PRODUCTION ENGINEERING DEPARTMENT

A degree or professional qualification in Mechanical Engineering, Production Engineering, Metallurgy, Ship Construction Engineering or Manufacturing Engineering.

A degree or professional qualification in Mechanical Engineering with Aircraft Maintenance Engineer's Licence.

(e) CHEMICAL PROCESS TECHNOLOGY DIVISION

A degree or professional qualification in Chemical Engineering, Chemistry, Polymer Technology or Food Technology. Candidates with teaching and industrial experience in the field of Plastic Mould Making will also be considered.

REMUNERATION

Principal Lecturer: S\$45,110.821
Senior Lecturer: S\$35,110.821
Lecturer: S\$25,110.821

Point of entry will depend on qualifications and experience.

PROVIDENT FUND CONTRIBUTIONS

As provided by the current law, appointees will be required to contribute 10% of their gross monthly salary subject to a maximum of S\$495 to the Singapore Polytechnic Provident Fund. This amount will contribute 20% making a total of 30%. The appointee will earn interest at a rate of 5% per annum and can be withdrawn at the end of the contract on departure from Singapore.

OTHER FRINGE BENEFITS

1. Return economy air fares for staff member, wife and a maximum of 3 dependent children below the age of 18 years.
2. Medical benefits for staff member and family.
3. Subsidised accommodation.
4. Annual leave of 2 weeks.
5. End-of-contract leave of 12 weeks for every 3 year term.
6. Car loans at 5% per annum interest rate.

HOW TO APPLY

Interested applicants are requested to submit their curriculum vitae together with details of academic/professional qualifications, experience and documentary evidence, etc. to the Assistant Registrar, Personnel, Singapore Polytechnic, P.O. Box 1005, Chioh Men Estate, Post Office, Singapore 9127.

UNIVERSITY COLLEGE OF BAHRAIN

Faculty positions

For the 1980-81 academic year.

University College of Arts, Science and Education, established in 1979, invites applications for faculty positions in the following fields:

Biology English language and literature

Zoology Arabic language and literature

Chemistry Islamic Studies

Physics Economics

Mathematics History

Candidates must have a Ph.D. and experience in a recognized university.

Language of instruction in science, mathematics and English literature: English; in all other fields, Arabic.

Minimum salaries for the rank:

Professor B.D. 9,600

Associate Professor B.D. 7,600

Assistant Professor B.D. 6,000

(B.D. = £1.20 = U.S. \$2.00 approx.)

Benefits and allowances: free, furnished, air-conditioned living quarters; full range of medical and health services; substantial educational allowances for up to 3 children; extra month's salary for each year of service; air tickets to and from Bahrain each year for family; two months' paid summer vacation; allowance for shipment of personal effects and household goods at beginning and end of appointment.

Bahrain has no income tax.

Contracts are for two years and are renewable.

Candidates should apply in writing, citing three references (including telephone numbers), to Dr. William A. Stuart, Rector, University College of Bahrain, P.O. Box 1682, Manama, Bahrain, Arabian Gulf.

